

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

*In the Matter of Developing a Unified)
Inter-carrier Compensation Regime)
NECA Petition for Interim Order)*

CC Docket No. 01-92

*Petition of the Embarq Local Operating)
Companies for Limited Forbearance Under)
47 U.S.C. § 160(c) from Enforcement of Rule)
69.5(a), 47 U.S.C. § 251(b), and Commission)
Orders on the ESP Exemption)*

WC Docket No. 08-8

**FEATUREGROUP IP OPPOSITION TO NECA PETITION FOR INTERIM ORDER
AND
FEATUREGROUP IP OPPOSITION TO PETITION FOR FORBEARANCE**



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EXECUTIVE SUMMARY

The Internet and the PSTN stand in open conflict: the Internet is a collective manifestation of the technical principles of openness, flexibility, user choice and user self-determination, while the PSTN is the unitary paragon of centralized design, deployment and control. The NECA Petition on signaling embodies this conflict, specifically in its conflation of the technical concepts of “signaling” and “addressing.” Internet addressing gives control to the user; PSTN addressing, through its ever-vigilant cartel of incumbent network owners, abrogates user control. NECA wants the Commission to intercede in the conflict, in which the Internet has lately gained victories and support, by forcing Internet telephony to conform to PSTN addressing standards.

FeatureGroup IP does not believe that such intercession is necessary; instead, it believes that solutions to the conflict can be arrived at by the engaged parties under the auspice of actively and adequately enforced principles of efficient interconnection. This Opposition will set out such principles. However, if one side must be brought to heel, it must be the PSTN, particularly in the area of addressing. Internet addressing must prevail because it is more generalized and logically includes PSTN addressing. Any PSTN address can be represented by an infinitude of Internet addresses whereas PSTN addresses can represent few or none of its Internet counterparts. Internet addressing is more modern and superior both technically and from a policy perspective. Any decision by the Commission must empower, not limit, user choice. Taking the legacy approach will only serve to maintain and extend the dominion of a few, the cartel of incumbent network owners, over the many.

While the NECA Petition overtly requests intercession on addressing, it covertly seeks to eliminate the ESP Exemption, and to force non-carriers (and now even individual users) to carry

carrier burdens without providing carrier benefits. And now Embarq has overtly requested that the long-standing ESP Exemption – which Congress essentially codified in the 1996 amendments – be eliminated in a way that results in imposition of exchange access charges on traffic that is not “telephone toll.” Sections 251(b)(5) and (g) and 252(d)(2) cannot be construed to require any traffic other than “telephone toll” to pay “exchange access” charges. The NECA Petition is merely a back-door method of regulating and taxing non-carriers and even individual users of new technology. The Embarq petition is a frontal assault and it too must be turned away.

FeatureGroup IP will demonstrate in this Opposition that both NECA and Embarq exhibit a total lack of knowledge about – or at least concern over – the havoc granting either petition would cause. NECA would have the Commission functionally regulate Internet addressing, by vetoing several of the well-considered consensus-based methods that make it work, and allow it to be what it is. Embarq would cause a massive economic upheaval because of the network and financial rearrangements that would be required. Competitive carriers would suffer, ESPs would suffer, and even ILECs would be stretched in their abilities to carry it off. The ones we should all be most concerned about – consumers – will ultimately bear the brunt. The result will be higher prices, lower utility and a fair number of very irritated constituents.

Both Petitions must be denied.

TABLE OF CONTENTS

FEATUREGROUP IP OPPOSITION TO NECA PETITION FOR INTERIM ORDER AND FEATUREGROUP IP OPPOSITION TO PETITION FOR FORBEARANCE.....	1
EXECUTIVE SUMMARY	2
TABLE OF CONTENTS.....	4
FEATUREGROUP IP OPPOSITION TO NECA PETITION FOR INTERIM ORDER AND FEATUREGROUP IP OPPOSITION TO PETITION FOR FORBEARANCE.....	6
DESCRIPTION OF FEATUREGROUP IP	6
ARGUMENT.....	11
I. NECA Petition for Interim Order.	11
A.Overview of NECA Petition and USTA proposed rules.	11
B.NECA wants the Commission to regulate the Internet, non-carriers, Internet Protocol services, applications and devices and even and individual users under Title I.	15
C.NECA and USTA Exhibit Profound Ignorance of IP-Based Services, Applications and Devices and How Users Employ Them Today. They Do Not Correctly Represent How Their Own Networks Operate. The Proffered Solution Would Not Solve the Perceived Problem Because A Telephone Number in the CPN Parameter Does Not Identify the “Responsible Party” Even if There is One.....	19
D.Whatever Rules NECA Seeks Must Be Separately Noticed For Comment Since They Would Bind Entities That Are Not Presently Covered By This Proceeding.....	41
E.There Are Often Legitimate Reasons Why Traditional Numbers Are Not Signaled; ILEC Systems Often Do Not Preserve or Recognize Originating Party Identity Markers That Are Sent Via SS7.	44
F. The Request For An Interim Order Imposing Signaling Requirements Is Really Just A Petition to Eliminate the ESP Exemption on an “Interim” Basis; The Commission Cannot Eliminate The Exemption Since It is Codified Into §§ 251(b)(5) 252(d)(2) And Is Not “Carved Out By § 251(g).....	47
On the PSTN everything “walks like a duck” and is a “voice service.”.....	50
II. Opposition To Embarq Forbearance Request.....	63
A.Embarq Wants to Recover Access Charges Against Both ESPs and Interconnecting CLECs That Serve ESPs.....	64
B.Embarq Reinvents the History and Purpose of the ESP Exemption and the Commission’s Descriptions of the Scope of the Exemption.	69
C.Embarq Misconstrues the Access Charge Rules.....	72
D.Embarq’s Request is Not “Technology-Neutral.”	73
E. Embarq’s Petition is Unclear as to the Scope of its Requested Relief.....	75
F. Embarq’s Requested Relief is Neither Mutual Nor Reciprocal.....	76
G.Embarq’s Request Rails Each of the Forbearance Tests.	77
III. THE NECA AND EMBARQ PETITIONS WOULD REQUIRE MASSIVE, COSTLY AND TOTALLY UNNECESSARY NETWORK AND ROUTING RECONFIGURATIONS BY ILECs, CLECs AND ESPs	81

IV. THE COMMISSION SHOULD ADOPT MODERN, FORWARD-LOOKING INTERCONNECTION PRINCIPLES THAT FACILITATE EFFICIENT AND COST-BASED INTEROPERATION BETWEEN THE LEGACY PSTN AND THE INTERNET.....	84
A.Introduction.....	84
B.Principles of Interconnection.	89
CONCLUSION.....	91

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NOW COMES Feature Group IP and respectfully submits this Opposition to the Petition for Interim Order (“Petition”) filed by the National Exchange Carriers Association (“NECA”)¹ and Opposition to the Petition for Forbearance submitted by Embarq that seeks elimination of the “ESP Exemption” from switched access charges. These are submitted together because each functionally seeks the same thing, notwithstanding that NECA’s Petition purports to address “signaling” for the most part and Embarq wants forbearance from FCC “rating” rules.

DESCRIPTION OF FEATUREGROUP IP

“FeatureGroup IP” is a trade name used by each of a set of affiliated companies individually known as FeatureGroup IP North LLC, FeatureGroup IP Southeast LLC, FeatureGroup IP Southwest LLC, FeatureGroup IP West LLC and UTEX Communications Corp. d/b/a FeatureGroup IP. The Feature Group IP companies are all Competitive Local Exchange Carriers. Each provides (or will provide when operational) only “telephone exchange

¹ Petition for Interim Ruling, January 22, 2008.

service” or “exchange access service” as part of a federally-tariffed offering to new-technology users and non-carrier enhanced/information service providers. FeatureGroup IP’s “IGI-POP” service provides intermediation with the legacy PSTN. No FeatureGroup IP entity does or will provide “telephone toll service.” No FeatureGroup IP entity provides “Interconnected” any other kind of “VoIP” service, although some FeatureGroup IP customers (or their patrons, or the users of their patrons) do. FeatureGroup IP services are all telecommunications services and are exclusively LEC functions in that they are either telephone exchange service or exchange access service.

One of the FeatureGroup IP entities is the “UTEX Communications Corp.” that is mentioned and accused of wrongdoing by NECA on page 4, note 10² and page 13, note 58. NECA’s citation to this case is based on propositions that are not supported by the facts and the real issues involved in the case that is presently before the Texas PUC. Further, they engage in incorrect assumptions about the traffic in issue, the technology that is used to generate it and the users that initiate the sessions that ultimately lead to connection with an end-point on the PSTN.

For example, NECA asserts in note 57 on p. 12 that “NECA also recognizes that some entities are beginning to provide interconnected IP-based services that do not utilize or assign NANP numbers. At the present time, however, the vast majority of calls sent to NECA member companies for termination on the PSTN are in fact originated by devices that have been assigned NANP numbers, and are associated with services offered as direct substitutes for traditional local

² NECA also asserts in this footnote that interconnection trunks are to be used only for “local” traffic. Embarq’s Petition makes a similar claim on page 5. (“For the same reason, non-local IP-to-PSTN traffic cannot lawfully be routed through local interconnection trunks for purposes of reciprocal compensation under section 251(b)(5) of the Act.”) The ILECs persist in such notions despite the Commission’s recognition in ¶184 of the *Local Competition Order* that §251(c)(2) interconnection addresses both “telephone exchange service” (of which “local” traffic is a mere subset) and “exchange access.” The *ISP Remand Order*, of course, also correctly observed that the term “local” is not even used in §§251(b)(5) or 251(c)(2). There is nothing in §251(a)(1) or (c)(2) that supports this position and §251(b)(5) on its face applies to all “telecommunications” – not just “local” traffic.

and long-distance telephony services.” That is absolutely factually incorrect with regard to FeatureGroup IP.

FeatureGroup IP provides PSTN intermediation for many services³ and applications that do not have “NANP numbers.” FeatureGroup IP’s Texas affiliate is currently handling about 80 million minutes per month. 80% of FeatureGroup IP’s Texas traffic does present a 10-digit NANPA number. Somewhere between 5-7% presents no originating party information in the CPN parameter, for reasons that will explained below. Between 15-20% – on the order of 16 million calls per month – has information in the CPN parameter that cannot be interpreted as “10-digit NANP” syntax, especially if that is interpreted (as some ILECs do) to also require a “geographic” number. Some of this 15-20% does in fact involve presentation of a 10-digit NANP number but it is nongeographic, *e.g.* an 8YY number or a “500” number. Some of the 15-20%, on the other hand, presents a “best effort” attempt to identify the calling party. For example, Skype presents a string like “0000123456” while other networks present an IP number compressed into NANP-like format. Or some other character string representing some other Internet or numbering plan address may be included. A large and growing percentage of the Texas traffic is associated with services that do not have or use NANP numbers⁴ and do not meet the definition of “Interconnected VoIP service” as defined in 47 C.F.R. § 9.3. The reason is that since these applications and services do not have or use NANP numbers they cannot at present “receive calls that originate on the public switched telephone network.” FeatureGroup IP has

³ The term “services” here is not always used in the way telecom providers and some regulators use the term. We also use “service” in the sense used by Unix systems or in the Internet Protocol, which often supports a “service” such as File Transfer Protocol. In the IP world a “service” supports an “application” used by a consumer and is often not an individual item sold or provided by a competitor for a fee.

⁴ With regard to the applications, services or devices that *have* chosen to signal NANP numbers, UTEX faithfully sends that information as well. Approximately 97% of the traffic that presents a NANPA 10-digit number is IP-originated. The remaining 3% may originate on Feature Group D access trunks, but it is – as far as FeatureGroup IP can determine – still related to an enhanced/information service.

made several attempts to ameliorate this lack of symmetry. One current proposal is to map outgoing non-NANP addressed traffic to non-geographic “500” numbers. This would enable dynamic call-back capabilities for services and applications that do not have or use an individually-assigned NANP address. Unfortunately, NECA-aligned carriers have categorically refused to route back to FeatureGroup IP’s FCC-assigned 500-based numbers that were allocated expressly and specifically for this purpose.

Regardless of the information presented by FeatureGroup IP’s customers, FeatureGroup IP has an absolute policy of fidelity, and this practice is set out in unambiguous terms in FeatureGroup IP’s tariff. FeatureGroup does not change any information in the CPN parameter. If a NANP number is represented to FeatureGroup IP by its customer, it is passed on without alteration. If the parameter is empty (“null”), FeatureGroup IP passes the empty parameter, unaltered. If the parameter contains other information that would not meet NECA’s test, then that information is passed, without alteration.

The NECA request would materially and negatively impact FeatureGroup IP, its customers, the patrons of its customers and each entity or user. That impact would continue all the way down to any individual user that initiates a media session that touches the PSTN. Further, the imbalanced nature of the request – in that it includes only traffic that ILECs terminate but does not resolve or include any obligation regarding traffic they originate⁵ – is unfair and unduly favors their pecuniary interests over new technology providers, programmers, device manufacturers and users. More important, the entire request is based on a fundamental misunderstanding of how new IP-based technologies operate, particularly when communicating

⁵ NECA notes that the “Missoula Plan” proposed rules “would apply to all voice calls originating on the PSTN, transiting the PSTN, or destined for the PSTN from other networks.” Petition, p. 8. NECA’s Petition, however, plainly applies only to traffic that terminates to a PSTN end-point, and not to traffic originating on a PSTN end-point that terminates on an IP-based end-point.

with one or more end-points on the PSTN. NECA and the other ILECs supporting these rules are functionally asking the Commission to overrule several accepted Internet operational conventions and to *sub silentio* prescribe changes to them. The ILECS are asking the Commission to assert regulatory jurisdiction over individual users who, using software that comes pre-packaged with most personal computers, initiate IP-enabled sessions that in some fashion include a PSTN end-point. The Commission cannot and should not grant NECA's requested relief.

FeatureGroup IP filed its own Forbearance petition⁶ prior to that submitted by Embarq. While both forbearance requests address similar topics and seek opposite results to some extent, they are not complete mirror images of each other. The Commission could conceivably grant both Petitions, by forbearing from applying the access charge regime to "voice-embedded Internet communications" and also by forbearing from applying the ESP exemption to IP-enabled voice calls to the PSTN that simply replicate traditional narrowband voice telephony. The Commission could also grant the Feature Group IP petition for all telcos without exception or with the exception of Embarq, while granting the Embarq petition for all but Feature Group IP, or including Feature Group IP. There are a number of potential combinations. Nonetheless, FeatureGroup IP believes that the Commission should deny Embarq's Petition in its entirety for the reasons set out herein.

⁶ *Feature Group IP Petition For Forbearance Pursuant to Section 160(c) From Enforcement of Section 251(g) and Sections 51.701(b)(1) and 69.5(b) of the Commission's Rules*, WC Docket 07-256 (filed Oct. 23, 2007).

ARGUMENT

I. NECA Petition for Interim Order.


A. Overview of NECA Petition and USTA proposed rules.

1. NECA Petition.

NECA, supported by the “Rural Alliance,”⁷ the Montana Telecommunications Association,⁸ the US Telecom Association (“USTA”),⁹ and the Independent Telephone and Telecommunications Alliance (“ITTA”)¹⁰ have requested that the Commission issue “an interim order on call signaling requirements.”¹¹ FeatureGroup IP opposes the request for all the reasons stated herein.

The NECA Petition does not contain any rules that it seeks to have promulgated, and provides only a general description of the actual relief it requests. USTA’s February 12 *Ex Parte* does contain some proposed rule language, but it is not clear that the language supplied by USTA is supplied to implement the NECA Petition.¹² It is therefore somewhat difficult to fully analyze the Petition. But based on NECA’s description and the USTA suggested language, there are significant problems with what they each appear to want.

NECA asks the Commission to adopt “an interim order in this proceeding on call signaling requirements.”¹³ According to NECA, this would:

 “Extend[] existing call signaling requirements to all interconnected voice service providers and to all types of voice traffic terminating on the public switched telephone network (PSTN), regardless of jurisdiction or the technology used at the

⁷ Written *Ex Parte* filed February 8, 2008.

⁸ Written *Ex Parte* filed February 11, 2008.

⁹ Written *Ex Parte* filed February 12, 2008

¹⁰ Written *Ex Parte* filed February 14, 2008

¹¹ NECA Petition, p. 1.

¹² This is particularly so since the USTA rule would not entirely accomplish what NECA professes to want. This is addressed below.

¹³ NECA Petition, p. 1.

point of call origination. According to NECA this would “extend the requirement to transmit the calling party number to all voice telephony calls originated by devices that utilize or are assigned a 10-digit NANP number.”¹⁴

☎ “[C]larify that the calling party number transmitted in the signal reflects the true 10-digit telephone number of the individual end-user customer originating the call, and not a number associated with intermediate switches, gateways, or “platforms” used to access the PSTN. Also consistent with this Order, the Commission should clarify that providers may not populate the Charge Number (CN) parameter of the SS7 signal with the number of a platform or gateway.”

☎ “[C]larify that, absent mutual agreement on factors or the provision of information that can be used to determine with reasonable accuracy the actual origination point of a call (*e.g.*, cell site identification data), terminating carriers may use as a default the originating and terminating telephone numbers associated with a call to determine jurisdiction for billing purposes.”¹⁵

☎ Declare that “[t]he Calling Party Number (CPN or ANI, or IP equivalent¹⁶) shall be the (10 digit) NANP subscriber line number or directory number associated with the telephone (or similar device) used by the individual originating the call.”

☎ Specify that “[i]f the service provider or carrier signals the Charge Number (CN), the CN must be the true calling party’s CN.”

☎ Hold that “all interconnected voice service providers¹⁷ who utilize a “platform” or gateway to manage calls may not pass the number associated with the platform or gateway in the CPN, CN (or ANI), JIP, or any other parameter.”

¹⁴ NECA Petition, p. 1, note 2.

¹⁵ It is not clear whether NECA is proposing that this default rating would apply to intercarrier compensation as between two LECs, meaning that when the two telephone numbers are associated with different local calling areas the terminating ILEC would be able to assess the interconnecting LEC access charges. If that is what NECA intends, then that would run flatly afoul of §§251(b)(5) and 252(d)(2). It would also be directly contrary to the clear intent of the Commission in note 92 of the *AT&T Declaratory Ruling*, which clearly states that when two LECs jointly provide terminating access to an IXC the IXC is the responsible party, not either of the two LECs. Order, *In the Matter of Petition for Declaratory Ruling that AT&T’s Phone-to-Phone IP Telephony Services are Exempt from Access Charges*, WC Docket No. 02-361, FCC 04-97, 19 FCC Rcd 7457, 7471, note 92 (rel. April 21, 2004) (“*AT&T Declaratory Ruling*”) [“We note that, pursuant to section 69.5(b) of our rules, access charges are to be assessed on interexchange carriers. 47 C.F.R. § 69.5(b). To the extent terminating LECs seek application of access charges, these charges should be assessed against interexchange carriers and not against any intermediate LECs that may hand off the traffic to the terminating LECs, unless the terms of any relevant contracts or tariffs provide otherwise.”]

¹⁶ NECA states in its Note 67 that the “IP equivalent” is “the originating end-user’s NANP number in the IP-equivalent parameter (*e.g.*, SIP Request URI).”

¹⁷ NECA says it wants relief as against “interconnected voice service providers.” Petition pp. 4, 13, 14, 15, 16, 19. But NECA also refers to “interconnected IP-based services” on p. 12, note 57 and then uses “interconnected VoIP service providers” on p. 15. With all this loose language FeatureGroup IP simply cannot tell if NECA intends the relief it seeks to apply only to “Interconnected VoIP service” as defined at 47 C.F.R. § 9.3 or other services/applications as well. In the same vein, NECA talks about “voice calls” and “voice telephony” but never defines what those varying terms and phrases include or exclude. One infers that there may be some calls that terminate on the PSTN that are not “voice calls” and/or “voice telephony calls” and would therefore be excluded from NECA’s requested relief. There is simply too much loose terminology to allow potentially affected parties to

- ☎ Require that “[i]ntermediate carriers and/or providers shall transmit all signaling data without alteration, except as otherwise provided by Commission rules and industry standards.
- ☎ “[C]larify that call signaling rules apply to all calls, regardless of jurisdiction.”

In order to support its request for a “default numbers rule” NECA argues that:

the best default method for determining the applicable intercarrier compensation rate is reliance on the ‘telephone numbers rule’ as described in the Missoula Plan. Under this approach, jurisdictional determinations for CMRS calls would simply be based on the originating and terminating telephone numbers. That is, when cell site location information is not available, CMRS-to-LEC traffic would be designated as *reciprocal compensation traffic* when the calling telephone number of the wireless subscriber and the called telephone number of the wireline subscriber are associated with rate centers within the same MTA. CMRS-to-LEC traffic would be designated as *access traffic* and subject to applicable interstate or intrastate terminating access charges when the calling telephone number of the wireless subscriber and the called telephone number of the wireline subscriber are associated with rate centers located in different MTAs.

NECA’s request for a “default numbers rule” appears to be limited to only terminating traffic. The words used in the Petition, for example, speak only to calls originated on a CMRS network and terminated by an LEC, and ignore calls originated by an LEC and terminated by a CMRS carrier. It is impossible to determine whether NECA would change the part of the rule that subjects LEC-originated traffic addressed to wireless networks to §251(b)(5) if the calling and called parties are in the same MTA at the beginning of the call. NECA also makes it clear that they do not want to be bound by the default numbers rule when they originate traffic addressed to “local” numbers held by a competitive carrier, and instead they want to be paid originating access by the terminating carrier if they can craft some argument that the call does not “really” terminate locally. This is obvious from NECA’s note 76 on page 18.¹⁸

analyze precisely what it is that NECA wants. Do they include or exclude calls to or from FAX machines? What about calls to or from modems used to connect to private networks or the Internet?

¹⁸ “[note 76] States are also struggling with disputes over the appropriate intercarrier compensation for calls to telephone numbers that are ported outside their original rate centers (VNXX calls). Where the actual geographic end points of calls are known, however, there would not appear to be a need to rely on the telephone numbers rule as a default mechanism.”

NECA summarizes its requested relief on page 19. It asks the Commission to:

extend its call signaling rules to all carriers and interconnected voice service providers and to clarify the application of these rules as described above. Such action is supported by compelling public interest concerns as well. The Commission should accordingly issue an interim order in this proceeding directing all carriers and interconnected voice service providers originating, transiting, or terminating voice traffic on the PSTN to provide and transmit accurate call signaling data for all traffic, regardless of jurisdiction and without regard to technology used to originate or transmit the call. The Commission should also clarify that calling party number data provided must be the 10-digit NANP number associated with the telephone (or similar device) of the individual end-user originating the call, not an intermediate switch, platform, or gateway. Finally, NECA requests the Commission to declare that, in the absence of data on the actual geographic origination point of calls or absent mutual agreement on verifiable traffic factors, carriers are entitled to determine the applicable intercarrier compensation rate based on the calling and called telephone numbers for all calls.

2. USTA proposed rule language.

Although NECA does not provide actual proposed rule language, the attachment to USTA's February 12 Notice of *Ex Parte*¹⁹ does have some suggested rule text:

Proposed Rule: Every originating provider must transmit in its signaling, where feasible with its network technology deployed at the time the call was originated, the telephone number received from or assigned to the calling party. This provision does not apply to calls subject to 47 C.F.R. §§ 64.1601(d) or (e), or where PSTN industry standards or guidelines would dictate otherwise.

Proposed Rule: Every provider must transmit without alteration, except where not feasible with network technology deployed at the time the call was originated, or where PSTN industry standards would dictate otherwise, the telephone number information that it receives from another provider in signaling.

The USTA language discusses "PSTN" standards and does not mention Internet standards. It is not clear whether they – like NECA – seek to overturn Internet standards and replace them with more rigid and often unworkable PSTN standards. It is also not clear whether

¹⁹ USTA, however, does not say in the *Ex Parte* Notice filing whether USTA supports NECA's request and/or that these proposed rules are designed to implement NECA's request or something else.

USTA would – like NECA – have the Commission regulate individual users of IP technology by mandating that they program PSTN addresses that must be signaled from the originating equipment. The words suggest that – unlike NECA – USTA is proposing rules that would bind only carrier to carrier signaling on the PSTN and would not impact non-carriers.

To the extent USTA is attempting to control how IP-based technology operates it – like NECA – assumes that all IP-based services,²⁰ devices and applications have numbers to signal and that there is something a carrier will always receive that it would then have to pass on. Both NECA and USTA completely fail to address the applicable rules when the information does not exist or does not use a syntax the ILECs' systems will recognize. While the ILECs hand-wave that issue away, it is a huge matter of concern to FeatureGroup IP because it involves 20% of its total traffic, and that percentage is growing.

The most important difference between the NECA proposal and the USTA rule is that USTA does not explicitly specify that the calling party identifier to be signaled must use “10-digit NANP” syntax. This inconsistency implies that the USTA language is not intended to implement the NECA Request, but is something different.

B. NECA wants the Commission to regulate the Internet, non-carriers, Internet Protocol services, applications and devices and even and individual users under Title I.

The Internet “has had a profound impact on American life,” bringing consumers and the public “a forum for a true diversity of political discourse, unique opportunities for cultural development, and myriad avenues for intellectual activity,” and serving as “an engine for

²⁰ As indicated above, the term “services” is not used in the way telecom providers and some regulators use the term. We are here using “service” in the sense used by Unix systems or in the Internet Protocol, which often supports a “service” such as File Transfer Protocol. In the IP world a “service” supports an “application” used by a consumer and is not an individual item sold or provided by a competitor for a fee. Yet NECA (and perhaps USTA) are trying to get the Commission to regulate applications and services employed by individual PC users.

productivity growth and cost savings.”²¹ Scholars have documented billions of dollars of cost savings and dramatic increases in productivity driven by adoption of the Internet and related technology.²² “No modern phenomenon better demonstrates the importance of free resources to innovation and creativity than the Internet.”²³ Today the barriers to entry for an entrepreneur or content creator are low, as the Internet provides an opportunity for all innovators to distribute their ideas far and wide at little expense.²⁴ This open platform has been an immensely powerful driver of social and economic benefits, bringing information, community, and educational and economic opportunity to anyone with a broadband connection. The diversity of content, services and applications available over the Internet today demonstrates the benefits of open Internet

²¹ Policy Statement ¶ 1, *In the Matters of Appropriate Framework for Broadband Access to the Internet over Wireline Facilities; Review of Regulatory Requirements for Incumbent LEC Broadband Telecommunications Services; Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review -- Review of Computer III and ONA Safeguards and Requirements; Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities; Internet Over Cable Declaratory Ruling; Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities*, CC Docket Nos. 02-33, 01-337, 95-20, 98-10, GN Docket No. 00-185, CS Docket No. 02-52, FCC 05-151, 20 FCC Rcd 14986, (rel. Sept. 2005).

²² Hal Varian et al., *THE NET IMPACT STUDY* (Jan. 2002), (available at http://www.netimpactstudy.com/nis_2002.html); see also Robert Crandall et al., *THE EFFECTS OF BROADBAND DEPLOYMENT ON OUTPUT AND EMPLOYMENT: A CROSS-SECTIONAL ANALYSIS OF U.S. DATA*, The Brookings Institution (July 2007) [finding that “for every one percentage point increase in broadband penetration in a state, employment is predicted to increase by 0.2 to 0.3 percent per year”] (available at http://www.brookings.edu/~media/Files/rc/reports/2007/06labor_crandall/200706litan.pdf); Bill D. Herman, *OPENING BOTTLENECKS: ON BEHALF OF MANDATED NETWORK NEUTRALITY*, 59 Fed. Comm. L.J. 103, 109 (2006) [“As neutral and therefore controlled platforms, both the Internet generally and the Web specifically have spawned a dazzling rate and range of innovation.”].

²³ Lawrence Lessig, *THE FUTURE OF IDEAS* at 14 (First ed., Random House) (2001) (available at http://thefutureofideas.s3.amazonaws.com/lessig_FOI.pdf); see also Yochai Benkler, *THE WEALTH OF NETWORKS, HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM*, pp. 1-2, © Yale University Press (2006) [discussing the emergence of a “new information environment” and its potential to “achieve improvements in human development everywhere”] (available at http://www.benkler.org/Benkler_Wealth_Of_Networks.pdf).

²⁴ See, e.g., Lawrence Lessig, *IN SUPPORT OF NETWORK NEUTRALITY*, 3 ISJLP 185, 188 (2007) [“Indeed, if you consider some of the most important innovations in this history of the Internet—from the development of the World Wide Web by a Swiss researcher at CERN, to the first peer-to-peer instant messaging chat service, ICQ, developed by a young Israeli, to the first web based (or HTML-based) email, HoTMaiL, developed by an Indian immigrant – these are all innovations by kids or non-Americans, outsiders to the network owners.”].

access, and highlights the importance ensuring that this platform remains open to all.²⁵

Almost every personal computer bought today comes pre-installed with third-party software programs that can with minimal effort and configuration immediately start initiating media sessions that include PSTN end-points. Microsoft's Windows operating system has provided one such built-in client in each version from 1995 up to Vista.²⁶ Many free and paid applications and services, including, for example, "click-to-call" capabilities on Facebook, GoogleTalk/GrandCentral and SkypeOut, facilitate calling to the PSTN through a normal web browser. Wi-Fi routers available today incorporate or facilitate connections to ATAs and Wi-Fi enabled mobile handsets that can "call" the PSTN either for free or for a modest fee. While many of these applications and services require a broadband Internet connection, many (Skype among them) provide near carrier-grade quality with even narrowband dial-up access through the use of compression algorithms that consume as little as 4 Kbps per "voice path." These are all "Internet" applications, services and devices and they are decidedly not telecommunications services offered or provided by "carriers."

The Commission recognized its "duty to preserve and promote the vibrant and open character of the Internet as the telecommunications marketplace enters the broadband age"²⁷ by adopting its Internet Policy Statement, which set out certain entitlements that – contrary to what the ILECs may imply are directly relevant to the issues in this Docket:

...the Commission adopts the following principles:

²⁵ See, e.g., OPENING BOTTLENECKS: ON BEHALF OF MANDATED NETWORK NEUTRALITY *supra* n. 5 at 114 [explaining that a neutral broadband network encourages innovation by "permit[ing] innovators to plan based on stable expectations"].

²⁶ See, <http://en.wikipedia.org/wiki/TAPI> ["The Telephony Application Programming Interface (TAPI) is a Microsoft Windows API, which provides computer telephony integration and enables PC's running Microsoft Windows to use telephone services."]. There are a number of other competing APIs such as the Java Telephony API (JTAPI), which is designed to operate on many different kinds of operating systems. See, Java ME, JAVA TELEPHONY API (JTAPI) © 1994-2008Sun Microsystems, Inc., available at <http://java.sun.com/products/jtapi/>.

²⁷ Policy Statement ¶ 5.

- *To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet, consumers are entitled to run applications and use services of their choice, subject to the needs of law enforcement.*
- *To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet, consumers are entitled to connect their choice of legal devices that do not harm the network.*
- *To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet, consumers are entitled to competition among network providers, application and service providers, and content providers.*²⁸

Although this case involves the “narrowband” PSTN, the ILECs Petition for Interim Order (“Petition”) seeks to have the Commission functionally regulate broadband and narrowband IP-based services and applications and even consumers’ use of those services and applications if the service or application somehow “touches” a PSTN end-point.

The Commission cannot and should not grant the NECA Petition. The request would directly violate several substantive and policy provisions in the Communications Act relating to new technology and interconnection between the various kinds of carriers and non-carriers that interconnect with the PSTN. It also unreasonably and unlawfully favors legacy systems and technology to the point that it penalizes new technology when the two kinds of networks must interoperate in order to jointly support traffic. Finally, it is based on a fundamental misunderstanding of how IP applications, services and edge devices actually operate and how users are employing them today. The relief requested would be largely impossible to enforce or to comply with, even if it were to be granted.

²⁸ Italics in original, underline added.

C. NECA and USTA Exhibit Profound Ignorance of IP-Based Services, Applications and Devices and How Users Employ Them Today. They Do Not Correctly Represent How Their Own Networks Operate. The Proffered Solution Would Not Solve the Perceived Problem Because A Telephone Number in the CPN Parameter Does Not Identify the “Responsible Party” Even if There is One.

The Internet and the PSTN stand in open conflict: the Internet is a collective manifestation of the technical principles of openness, flexibility, user choice and user self-determination, while the PSTN is the unitary paragon of centralized design, deployment and control. The NECA Petition on signaling embodies this conflict, specifically in its conflation of the technical concepts of “signaling” and “addressing.” Internet addressing gives control to the user; PSTN addressing, through its ever-vigilant cartel of network owners, abrogates user control. NECA wants the Commission to intercede in the conflict, in which the Internet has lately gained victories and support, by forcing Internet telephony to conform to PSTN addressing standards.

FeatureGroup IP does not believe that such intercession is necessary; instead, it believes that solutions to the conflict can be arrived at by the engaged parties under the auspice of actively and adequately enforced principles of efficient interconnection. This Opposition will set out such principles. However, if one side must be brought to heel, it must be the PSTN, particularly in the area of addressing. Internet addressing must prevail because it is more generalized and logically includes PSTN addressing. Any PSTN address can be represented by infinitude of Internet addresses whereas PSTN addresses can represent few or none of its Internet counterparts. Internet addressing is more modern and superior both technically and from a policy perspective. Any decision by the Commission must empower, not limit, user choice. Taking the legacy approach will only serve to maintain and extend the dominion of a few, the cartel of incumbent network owners, over the many.

NECA wants the Commission to declare that “[t]he Calling Party Number (CPN or ANI, or IP equivalent) shall be the (10 digit) NANP subscriber line number or directory number associated with the telephone (or similar device) used by the individual originating the call.” It then explains in note 67 that the “IP equivalent” is “the originating end-user’s NANP number in the IP-equivalent parameter (e.g., SIP Request URI).” The ILECs exhibit a near-complete ignorance about how IP-based technology, devices, services and applications operate, how users (in large part people that are the ILECs’ own basic and broadband customers that are communicating with their neighbors, family members and friends – who are in turn often on the ILEC’s networks as well) are employing and using this technology today and the volume of traffic that is represented by this use. The ILECs are railing at what their own users are doing, and the NECA request represents a naked attempt to stop their users from doing anything other than what the ILECs allow, when they allow it, and only when the ILEC gets paid an excessive, unreasonable and unjustified fee.

1. NECA does not understand Internet addressing.

NECA refers to SIP, H.323 and URIs on page 4, note 8 and page 15 and note 57 in an attempt to convince the Commission to impose PSTN signaling and other obligations on non-carriers. They utter Internet-sounding incantations and invoke Internet-related terms and references, but what they are saying – once examined and considered by anyone that understands that the Internet is not just a “differently abled” telephone network – is nonsensical. They have no idea what they are talking about or the real effect of what they are proposing.

A Uniform Resource Identifier (URI) is a compact string of characters that which names an abstract or physical resource. This may be a document, an image, a downloadable file, a service, an electronic mailbox, a telephony user, or any other resources which permits electronic

interaction. URIs also represent an extensible framework of naming schemes and access methods: standardizing bodies, corporations and individual users continually invent and define valid schemes and methods.

Specifically, an absolute URI reference consists of three parts: a scheme, a scheme-specific part and a fragment identifier. A subset of URI references share a common syntax for hierarchical namespaces. For these, the scheme-specific part is further broken down into authority, path and query components. These URIs can also take the form of relative URI references, where the scheme (and usually also the authority) component is missing, but implied by the context of the URI reference.

The “SIP” scheme mentioned by NECA is only one of many, and “voice” can be supported by several schemes other than just SIP. The following example URIs illustrate several URI schemes and variations in their common syntax components:

<ftp://ftp.is.co.za/rfc/rfc1808.txt>
<http://www.ietf.org/rfc/rfc2396.txt>
[ldap://\[2001:db8::7\]/c=GB?objectClass=one](ldap://[2001:db8::7]/c=GB?objectClass=one)
<mailto:John.Doe@example.com>
<news:comp.infosystems.www.servers.unix>
<sip:bpvoip17@geekdom.net>
<tel:+1-816-555-1212>
<telnet://192.0.2.16:80/>
<urn:oasis:names:specification:docbook:dtd:xml:4.1.2>

RFC 4395²⁹ has a list of the currently supported and accepted URIs, recognizing that the list can be expanded in the future. The Internet Assigned Numbers Authority (IANA) has published the supported permanent and provisional Uniform Resource Identifier (URI) Schemes

²⁹ Network Working Group, Request for Comments: 4395: GUIDELINES AND REGISTRATION PROCEDURES FOR NEW URI SCHEMES, © The Internet Society (2006), available at <http://www.rfc-editor.org/rfc/rfc4395.txt>.

as of November 19, 2007.³⁰ The list currently has 72 entries.

While there are many registered URI schemes, there are an order of magnitude more permanent and provisional Internet protocols which operate at and below the application level. It is a rare situation – because there are no intrinsic reasons why it would happen – that any given addressing scheme cannot work with any given protocol. This is because, on the Internet, protocols and signaling are purposefully decoupled from addressing. This decoupling is simply good, accepted engineering. There is extreme irony here: the only addressing scheme that intentionally couples itself to the underlying protocol belongs to the system to which NECA wishes to subjugate the Internet – SS7.

In the parochial model of telecommunications, the operative question of technological innovation is: “What protocols should be allowed to interact with SS7, and therefore the PSTN?” This is the position of NECA, Embarq, and their allies. But this question is ridiculous to the Internet way of technological innovation. The question should be “What protocols *can’t* interact with SS7?” The answer to this question turns on the presence of what is called a basic call model, for which a relatively rudimentary formal state machine may suffice. This insight has lead to an explosion of Internet telephony protocols, including the following:

Jingle/XMPP (the google telephony protocol)	Skype	MGCP
TAPI	JTAPI	SIGTRAN
GlobalCall	ECTF S.100	ActiveX, SGCP
MEGACO/H.248	Dialogic R4	Skinny
Worldcall Call Protocol	SIP	H.323

Any of these protocols allow any user with a PC that has speakers and a microphone to communicate directly or indirectly with a PSTN user. It is significant that NECA only mentions

³⁰ The Internet Assigned Numbers Authority, UNIFORM RESOURCE IDENTIFIER (URI) SCHEMES PER RFC4395, © The Internet Corporation for Assigned Names and Numbers (2006), available at <http://www.iana.org/assignments/uri-schemes.html>.

two of these protocols: SIP and H.323. Why the limitation? Are they superior? By user count they are not the most prevalent. They are not technically superior. They do not offer addressing schemes more compatible with the PSTN. The answer is simple: NECA represents the partisans of the PSTN way and so they are compelled to select for the user. The user does not select for him or her self. For the Commission to bless this choice would be to institutionalize an arbitrary and indefensible selection of a subset of a nearly innumerable set of possible legitimate combinations.

The purposeful decoupling and layering of Internet protocols further illustrates this. In fact, many protocols that lack a call model, and thus lack the ability to directly interact with SS7, can serve as a lower layer to an application that implements this functionality. In fact, there are a number of existing protocols which are amenable to interworking with SS7 when augmented with application-layer call models. Among them are:

HTTP	SMTP	SNMP
BEEP	SOAP	XML-RPC
CORBA	RMI	.NET
DCOM	Sun RPC	DCE

NECA will have none of this. Variation and user choice must be locked away because as we all know when a user has a realistic choice and can walk away from an ILEC she usually will. Thus, NECA must absolutely prevent the Internet from “infecting” the PSTN. NECA somehow forgot to disclose to the Commission that its request would functionally regulate the Internet

But even on the use of the URI in SIP, NECA is confused. As indicated above, a URI is composed from a limited set of characters, but it can consist of digits, letters, as well as a few graphic symbols. A reserved subset of those characters may be used to delimit syntax components within a URI while the remaining characters, including both the unreserved set and those reserved characters not acting as delimiters, define each component’s identifying data.

NECA seems to imply that all SIP URIs, for example, must contain a “10-digit” telephone number after the mandatory “sip:” and before a required “@” that is followed by a necessary domain. This is absolutely not correct. First, far more than 10 characters can be used, and second, these characters can be any combination of US-ASCII digits or letters. The sip URI specification is described in sections 19.1 and 25 of RFC 3261. That RFC also demonstrates that the syntax for SIP is nothing like NECA implies on page 4 and note 8 of the Petition. Section 19.1.3 “Example SIP and SIPS URIs” provides these variations of valid syntax:

```
sip:alice@atlanta.com
sip:alice:secretword@atlanta.com;transport=tcp
sips:alice@atlanta.com?subject=project%20x&priority=urgent
sip:+1-212-555-1212:1234@gateway.com;user=phone
sips:1212@gateway.com
sip:alice@192.0.2.4
sip:atlanta.com;method=REGISTER?to=alice%40atlanta.com
sip:alice;day=tuesday@atlanta.com
```

Another recognized URI, but one NECA does not mention, is “tel.” The tel URI specification is described in RFC 3966.³¹ It’s syntax is somewhat different than many URIs in that there is no domain name; it is expressed as “tel: telephone-subscriber.” “Telephone subscriber” can be represented as either a “global-number” or a “local-number.” While this may most closely represent what NECA is trying to impose on the Internet, it is important to recognize that the RFC 3966 specification expressly states that it is not limited to 10 digits (and in particular there can be a “+” character as well as dashes (“-”) as indicated in the example given above.³² Further, the number does not have to be a “public” number. Although they are

³¹ Network Working Group, Request for Comments: 3396: THE TEL URI FOR TELEPHONE NUMBERS, © The Internet Society (2004), available at <http://tools.ietf.org/html/rfc3966>.

³² RFC 3966 states: “Phone numbers MAY contain visual separators. Visual separators (‘visual-separator’) merely aid readability and are not used for URI comparison or placing a call”; “Implementations MUST NOT assume that telephone numbers have a maximum, minimum, or fixed length, or that they always begin with or contain certain digits”; “As called and calling terminal numbers (TNs) are encoded in BCD in ISUP, six additional values per digit can be encoded, sometimes represented as the hexadecimal characters A through F. Similarly,

discouraged, a private number that is not routable on the PSTN can be used. RFC 2966 sets out examples of permissible syntax for this URI:

tel:+1-201-555-0123: This URI points to a phone number in the United States. The hyphens are included to make the number more human readable; they separate country, area code and subscriber number.

tel:7042;phone-context=example.com: The URI describes a local phone number valid within the context “example.com”.

tel:863-1234;phone-context=+1-914-555: The URI describes a local phone number that is valid within a particular phone prefix.

H.323, the other protocol shown favor by NECA is another Internet-based set of methods to exchange media. Like SIP, it supports audio alone, video alone or both audio and video. The addressing syntax for H.323 is flexible. It can include any IA5 (ASCII-like) alphanumeric character, and the address length is variable, not fixed. This therefore allows use of URIs, e-mail addresses, other identifier strings, and E.164 numbers. H.323 supports each of these aliases, and others as well:³³

E.164 dialed digits	generic H.323 ID	URL	transport address
email address	party number	mobile UIM	ISUP number

Of course, NECA has no ken for flexibility. It wants the Commission to require H.323 to use only one address – a 10 digit NANP number.

The point of this relatively extended discussion of Internet “standards” is that NECA does not understand its own arguments and they have not considered the potential impact to the

DTMF allows for the encoding of the symbols *, #, and A through D. However, in accordance with E.164, these may not be included in global numbers. Their meaning in local numbers is not defined here, but they are not prohibited.” Note that RFC 3966 expressly says that the “valid” non-numeric characters “are not used for URI comparison or placing a call” but they do exist within the address string. Does NECA want these characters, given its demand for no alteration, or does it want these characters removed by the gateway or a connecting carrier, so that all that is presented is the 10-digit NANP number? What about the “1+” shown in one of the examples of a valid address string: does it stay or must it go?

³³ See, H.323 VERSUS SIP: A COMPARISON, © Packetizer, Inc. (2008), available at http://www.packetizer.com/ipmc/h323_vs_sip/.

Internet of their proposal, since they are intent on protecting “their” PSTN above all else. They are trying to get the FCC to completely re-write the syntax for Internet-based addressing by imposing the E.164 method on all IP-based communications that in any manner happen to “touch” the PSTN. This is the Commission cannot and should not do.

FeatureGroup IP suspects that – despite the completely technically incoherent description – what NECA is really trying to say is that a *gateway* that connects IP-based communications to the PSTN must signal a 10-digit number.³⁴ The reference to RFC 3398³⁵ is what allows this inference. NECA states that this RFC “spells out how to map the CPN of a VoIP call (SIP-request URI) into the ISUP SS7 signal on the PSTN. A SIP-ISUP Gateway can use this standard to forward the CPN onto the PSTN.”³⁶ Again, NECA’s reference to RFC 3398 ignores several very significant technical issues.

It is important to understand that that RFC 3398 was intended to be informative, not normative. The goal was to facilitate the interoperability of SIP and SS7 networks and was never designed to mandate behavior. In fact, there are as many solutions to this problem in practice as there are equipment providers. RFC 3398 is a starting point; it is not an end. NECA is trying to hang its hat on RFC 3398 the way it has on the traditional specifications of telecommunications, such as ANSI SS7. This is yet another example of how NECA has failed to keep pace with the Internet and technology.

2. Non-carriers typically use ISDN-PRI trunks they secure from an LEC.

³⁴ How is that gateway going to get a number to transmit when many end-points are not addressed using NANP numbers? The source of is Commission’s authority to force software designers to accept and use only “approved” and “assigned” “true” numbers is still something of a mystery. NECA wants an “end-point” device “true CPN” and asks the Commission to expressly prohibit use of a number associated with a “platform” or gateway” but the “platform” or “gateway” is often going to be the only device that is or can be mapped to a telephone number.

³⁵ Network Working Group, RFC 3398, INTEGRATED SERVICES DIGITAL NETWORK (ISDN) USER PART (ISUP) TO SESSION INITIATION PROTOCOL (SIP) MAPPING, © The Internet Society (2002), available at <http://www.ietf.org/rfc/rfc3398.txt>.

³⁶ See NECA Petition, p. 4, note 8.

Although RFC 3398 is designed to directly interwork a gateway and an SS7 STP over A, B or F-links, in actuality most gateways today interwork SIP with “end user” ISDN-PRI D channel signaling under ITU-T Q.931,³⁷ and do not directly talk to ANSI or ITU-T standards-based SS7 STPs over A, B or F-links. The LEC switch is the one that converts the ISDN-PRI D channel signaling to SS7 and the LEC is the one that talks to STPs. ESPs are, after all, “end users” so it is not surprising they would typically employ a “Network to User” (carrier to end user) interface rather than a “Network to Network” (carrier to carrier) interface. This is important because the ILECs are insisting that non-carrier providers and users pay access charges, but most ILECs do not have a switched access offering that provides an ISDN-PRI interface. One must wonder exactly how it is that non-carrier IP-based providers and users will in fact physically interface with the PSTN. Will they have to use traditional Feature Group D – which typically does not use ISDN-PRI interfaces? Will the non-carrier IP-based providers and users have to directly purchase SS7 signaling from the ILECs as well? NECA and Embarq want the Commission to require ESPs to purchase switched access Feature Group D and implement SS7-capable networks, because that may be the only way to comply with the rule NECA wants to the Commission to adopt. Clearly, this is not a mere request to adopt “signaling” rules. It is a back-door end-run on the ESP Exemption and turn end users into carriers even though they do not provide any telecommunications service as it is defined in the Act.

3. RFC 3398 expressly contemplates two important things that directly undercut the ILEC’s position. Section 7.2.1 on page 20 says:

When a SIP call has been routed to a gateway, then the Request-URI will most likely contain a tel URL (or a SIP URI with a tel URL user portion) - SIP-ISUP gateways that receive Request-URIs that do not contain valid telephone numbers

³⁷ Q.931 is the ITU-T standard for the signaling that occurs between a PSTN carrier end office switch and an ISDN-PRI switching entity, where the carrier is “network” and the ISDN-PRI switch is “user.” Signaling occurs over the D channel. Q.931 and SS7 both use ITU-T Q.850 cause codes.

SHOULD reject such requests with an appropriate response code. Gateways SHOULD however continue to process requests with a From header field that does not contain a telephone number, as will sometimes be the case if a call originated at a SIP phone that employs a SIP URI user@host convention. The CIN parameter SHOULD be omitted from the outbound IAM if the From field is unusable. Note that as an alternative, gateway implementers MAY consider some non-standard way of mapping particular SIP URIs to telephone numbers.

Carefully consider what this paragraph says. First, it says that there will “most likely” be a tel URI,³⁸ but then it recognizes this will not always be the case, especially if the user portion is not a standard telephone number – as is perfectly permissible under RFC 3261. NECA, on the other hand, wants to require that there always be a 10-digit NANP number. They therefore want the Commission to “overrule” both RFC 3398 and RFC 3261. RFC 3398 goes on to provide that if an IP-originated end-point is attempting to establish a session with a PSTN end-point and the IP end-point does not have a “tel” user portion, then the gateway should signal “null” or “empty” CPN parameter information. Yet NECA is asking the Commission to require gateways to always signal a NANP number that the gateway cannot itself have or signal and must instead receive from some “device.” NECA also wants this Commission to vacate part of RFC 3398 because they would not allow “non standard” mapping given the requirement to use a single, unitary, invariable mapping of SIP URIs to telephone numbers.

FeatureGroup IP does not believe that the FCC should even consider overruling Internet “standards” and requiring Internet companies to dumb-down their networks and completely change addressing schemes merely for the convenience of telephone companies. What the Commission should be doing is requiring the telephone companies to more seamlessly interoperate with the more modern network. We don’t need a red-flag law.³⁹

³⁸ Observe again that although NECA cites to this RFC, the NECA discussion addresses SIP but does not acknowledge the separate “tel” URI.

³⁹ Imposing the signaling requirement on non-carriers would be the 21st century equivalent of England’s 1865 “Red Flag Law” – which prohibited cars from going faster than 4 miles per hour in the country and 2 miles per

4. The mapping standard NECA and USTA want the Commission to impose also ignores and would interfere with nationally and internationally recognized numbering plans that are incorporated in the SS7 protocols. NANP is not the only numbering plan, and some of them have more than 10 digits. One of the truly bizarre aspects of the Request is the part that asks the Commission to mandate that “[t]he Calling Party Number (CPN or ANI, or IP equivalent) shall be the (10 digit) NANP subscriber line number or directory number associated with the telephone (or similar device) used by the individual originating the call.”⁴⁰ The NANP is obviously not the only numbering plan in the entire universe, and several numbering plans use far more than 10 digits, yet NECA wants only NANP numbers and only 10 digits.

NECA’s request that CPN information contain only 10-digit NANP numbers is completely invalid and unsupportable from a technical perspective because it is wholly inconsistent with the worldwide ANSI ISUP protocol specification (T1.113-1995). This protocol specification for SS7 signaling defines a common format for addresses contained in several parameters, including but not limited to CPN. As will be further explained below, when CPN and called party number are represented additional information beyond just a number is also provided. The ANSI ISUP protocol specification expressly contemplates and provides for not only NANP numbers but also international plans and other country codes and, indeed, alternative numbering schemes used for other purposes, including mobile and maritime telephony and data services – with “IP-enabled voice” falling in the category of a “data service” that is expressly allowed to use a different addressing method. NECA is not content to overturn Internet

hour in town, and also required a signalman to walk ahead of the vehicle, swinging a red flag by day and a red lantern by night to warn of the potentially harmful approach of an automobile. The ILEC insist that the Internet must be regulated through the proposed signaling rules or the “world as we know it” will surely end.

⁴⁰ NECA Petition p. 15.

addressing; it wants the Commission to also veto ANSI T.113, which pertains to legacy telephone protocols.

NECA's contention that the CPN field must be 10 digits is simply and absolutely incorrect. Many different numbering schemes are currently operable in the communications space and SS7 provides for any that contain up to 16 digits and use SS7 or interoperate with it. For this reason, the address field specification is variable length, not fixed length. Up to 16 digits can be used. If NECA's notion about what "valid" CPN had any basis the CPN field would have been set as fixed length so as allow for exactly and only 10 digits. This naturally follows since the creators of SS7 signaling were dealing with relative bandwidth scarcity and bits are precious; if 10 digits were all that were necessary, that is all they would have made room for because of bandwidth constraints. But the creators of SS7 knew far more than NECA because they were not trying to be parochial or anti-competitive – and unlike NECA they wanted to encourage interconnection and interoperation. Thus the SS7 standards allow up to 16 digits, variable length individual fields for the NPA, the NXX and the line number and they were purposefully written to accommodate multiple numbering schemes.

In addition to the address field, other meta-data is also included. The format consists of a seven-bit field called the Nature of Address (NoA) indicator, followed by another three-bit field which contains the Numbering Plan Indicator (NPI), both of which are prefixed to the variable-length series of bytes that contain the digits of the telephone number in binary coded decimal (BCD) format. In the calling party number case, the NPI's byte also contains bit fields which represent the caller's presentation preferences and the status of any call screening checks performed up until this point in the call.

The Numbering Plan Indicator (NPI) is defined in the ITU standard Q.713, paragraph 3.4.2.3.3. It is a number composed of three bits. As of 2004 the following numbering plans and their respective Numbering Plan Indicator values have been defined:

3 Bit Indicator Value	Numbering Plan Represented	Related Standard
000	Unknown	—
001	ISDN Telephony	E.164
010	Generic	—
011	Data	X.121
100	Telex	F.69
101	maritime mobile	E.210
110	land mobile	E.212
111	ISDN/mobile	E.214

If the CPN is represented to be an “E.164” number, the NoA field (7 bits) describes whether the telephone number is in a national or international format. When the represented number is not designated to be in an international format, the NoA generally provides further information specific to the national dialing plan.

ITU Recommendation E.164, “Numbering Plan for the ISDN Era” defines how to build a numbering plan to allow interoperability between the numerous public networks all over the globe. E.164 specifies a format for a telephone number that will be recognized in all networks, including those in North America. The format is variable length and arranged in these specific subparts:

- **Country Code (CC)**—The country code is a one, two, or three-digit code representing a specific country or region.
- **National (Significant) Number (N(S)N)**—The N(S)N is the number used to select the destination subscriber. The N(S)N is further defined as containing the following fields:
 - **National Destination Code (NDC)**—The NDC is variable in length and contains Destination Network (DN) or Trunk Codes (TC) to indicate how to route a call. This is commonly called an area code in the NANP.

- **Subscriber Number (SN)**—SN is variable in length and is assigned to end subscribers. In the NANP, the SN is composed of the NXX and the directory or line number.

NECA would have the Commission rule that a “valid CPN” cannot include country code, and if country code is included then the CPN is not “valid.” This, of course, is nonsensical because the standard expressly provides for inclusion of country code when the numbering plan represented uses E.164. Further, NECA would require the NDC (area code) to be only 3 digits, when in fact the standard, again, provides for variable rather than fixed length and it can contain more than 3 digits. NECA would also require that the NPA-NXX be fixed length (7 digits) even though the ITU E.164 standard expressly says it is variable length. Now NECA wants to overrule the entire global addressing scheme for telephone networks – upon which even the NANP is based.

The presence of the two meta-data fields and the variability and flexibility that was built into the calling number parameter clearly demonstrates that NECA’s position has absolutely no basis in, and is not at all supported by the applicable SS7 standards. The address, NPI and NoA fields are absolutely centered on recognizing and providing for not only E.164 but also other addressing schemes in general and for mobile services in particular. For example, E.212 is used for mobile services in North America and E.214 is used for mobile services in other parts of the world. Note also that the standard allows for private schemes and even allows for extension if new schemes and associated standards arise. These numbering schemes are not limited to 10 digits. Even within the E.164 space, more than 10 digits are expressly contemplated in order to recognize other national numbering plans besides the NANP, and to allow presentation of international codes and country codes.

NECA's proposed rule presents an internal conflict: how can a provider that uses a different numbering plan that is not 10 digits and is not NANP simultaneously comply with the mandate to use the "true CPN" and the requirement that the CPN be a "(10 digit) NANP" number? If a call is originated from a device or application that is programmed to signal a number assigned under a different addressing scheme, must an interconnecting carrier strip that number and change it? But that would conflict with the other rule that prohibits changes to signaling information. NECA's Petition has no basis in the technical standards for the ISUP CPN and granting it would functionally overrule both national and international standards for interoperation of SS7-based networks with each other, and with other networks. The contemplated rules are internally inconsistent and technically incoherent.

5. NECA requests that the Commission require "the (10 digit) NANP subscriber line number or directory number associated with the telephone (or similar device) used by the individual originating the call,"⁴¹ based on an apparent but misguided belief that "devices [] utilize or are assigned a 10-digit NANP number" (Petition p. 2, note 2) and that "subscriber line number[s] or directory number[s] [are] associated with the telephone (or similar device) used by the individual originating the call." Petition p. 15. The drafters of the NECA Petition do not even understand NANP numbering or how the legacy PSTN and legacy handsets work.

First, NECA's terminology is once again incoherent and imprecise. Under the Commission's current rules, a "line number" is not "NPA NXX XXXX." The FCC's definition of "line number" is the last 4 digits of an entire traditional NANP number; a "line number" does

⁴¹ Emphasis added.

not include the 3 digit NPA or the 3 digit NXX.⁴² Does NECA want 4 digits, 7 digits or 10 digits? If they want 10 digits then they should not refer to the entire string as the “line number.” Further, what if the application, service or device employed by the user is programmed to signal a “1” in front of the 10-digit string for some reason? Is one of the downstream providers supposed to strip that character? They presumably could not because NECA’s other rule prohibits altering any signaling information. Another internal conflict.

Second, and more important, in the legacy network, numbers reside in a Class 5 end office switch. The switch is what is connected to the SS7 network, and the switch signals the number in the CPN and/or CN parameter. A basic analog station or handset does not send CPN to the LEC. The LEC switch detects the user going off hook and initiating the dialing sequence. The LEC knows from the line termination identifier on the distribution frame what the line is and pulls the phone number associated with that line from its system. Then, that number is populated in the parameters for the Automatic Number Identification/Charge Number (“ANI”/“CN”) and the “Calling Party Number” (“CPN”) as part of the Initial Address Message (“IAM”) within the SS7 “ISDN User Part” (“ISUP”). ANI is a generic parameter which is not directly transmitted across the network, and is usually derived from the CN at switching points.

The loop terminates to inside wiring that runs throughout the house, and often there are multiple places into which many different phones may be connected through standard interfaces such as an RJ11 jack. Telephones can be moved within the house, or even to other homes.

⁴² See, e.g., Declaratory Ruling and Order, *In the Matter of Proposed 708 Relief Plan and 630 Numbering Plan Area Code by Ameritech – Illinois*, IAD File No. 94-102, ¶ 2 and note 2, FCC 95-19, 10 FCC Rcd 4596, 4597 (rel. Jan. 1995) [(¶) “2. Telephone numbers in the United States are composed of a three-digit area code, a three-digit central office code, and a four digit line number.”^{[note 2]”]; [note 2: “For example, in the telephone number 708-555-6000, the area code is 708, the central office code is 555, and the line number is 6000. Area codes are more formally called ‘Numbering Plan Area’ codes or NPA codes. Central office codes are also called CO codes and sometimes referred to as NXX or NNX codes.”]. The Commission has repeated this description many times in its various numbering-related orders. NECA should know better.}

Technically speaking, telephones do not “utilize,” are not “assigned” and are not even “associated with” a number. The same handset could in fact “invoke” several numbers, and a “number” is not really even required in order to make an outbound call. The user’s account and a particular loop is what is “associated with” a number. If NECA wants precise and meaningful technical rules regarding signaling, it needs to speak precisely and use proper technical terminology.

NECA’s proposal suffers from even more technical inanity when business multi-line or DID-based services are considered. What is the “subscriber line number or directory number associated with the telephone (or similar device) used by the individual originating the call” when the originating station has no DID or 10-digit station number and secures dial-tone by dialing “9”? What is the “true” CPN if there is a multi-line key set or hybrid system and each station behind the system has equal access to the entire pool of numbers?

Old-style PBXs use what are called “PBX trunks.” They also typically secure Direct Inward Dial (“DID”) numbers, and the PBX operator will assign those DIDs to stations behind the PBX. When a PBX user dials “9” (or whatever is done to seize outside dial tone), the central office detects the line seizure attempt. Part of the seizure process involves the PBX sending in-band signaling to a LEC central office (“CO”), and this signaling includes, among other things the ANI. This is not an out of band SS7 connection and the PBX does not send “CPN” as that term is used in SS7. The CO will take the ANI and if necessary add the NPA and then the LEC system will populate the 10 digit number in the SS7 IAM CPN.

The concept NECA espouses becomes even more ludicrous when end-user services such as ISDN are involved. ISDN-PRI uses a form of out of band signaling, but it is not SS7. The PBX or other edge device passes messages to the CO via a 64kpbs “D” channel. ISDN “D”

channel messages used to signal call control are composed of information elements and follow the format specified in ITU-T Q.931. Part of the “set up request” signal will include the addressing information the user programs the PBX or edge device to send. In contrast to analog residential or traditional PBX lines, LEC end office switches do not themselves generate the information that is populated in the CPN parameter when it comes to ISDN; the user-programmed information is what is sent so long as it complies with ANSI SS7 specifications, and it can be any number. Technically speaking, ISDN-PRI does not even “need” a telephone number or E.164 address to initiate a call and even if the user has a number, it does not have to be signaled. The user can specify that no number be sent in the information element (“IE”) (analogous to the “parameters” in SS7) designed to indicate the caller’s address. The user can populate the IE with any number or no number.

End user ISDN signaling is not limited to 10 numeric characters. Q.931 specifies that the digits part of the CPN IE is a *variable length* collection of IA5 (ISO 646) encoded fields; the ISDN CPN IE can hold up to **16** characters. IA5 is very close to American Standard Code for Information Interchange (“ASCII”) and it can include both **alphabetic** and numeric characters.⁴³ Yet NECA wants only 10 numeric digits so it must not be aware that industry standards expressly allow up to **16 alphanumeric** characters for the ISDN CPN IE. Do NECA’s proposed rules contemplate that LECs will impose some obligation and requirement on their ISDN customers that will limit their actions and choices in ways that are inconsistent with what is allowed by national and international standards for ISDN? If so, then they are asking the

⁴³ Unlike the network to user based ISDN PRI D channel signaling parameters, the SS7 ISUP IAM CPN standards do not allow alphabetic characters. The CPN parameter, however, is *variable length* with a maximum of 16. NECA wants to make it a fixed-length 10 digit parameter, so it is functionally seeking to change the SS7 standard.

Commission to directly regulate users and more than likely ISDN-based CPE manufacturers and vendors.

If NECA wants providers to somehow monitor and enforce some rule it needs to be a bit more technically oriented and much more precise because what NECA is talking about is often under the control of CPE vendors and individual users, not carriers or providers.

6. The request to require assignment of numbers to software that must then signal the assigned number is unworkable and reliance on any number that is signaled to identify the “responsible party” would in fact misidentify the “responsible party.” Many users of IP-enabled services that are not “Interconnected VoIP service” will program their system to signal a traditional number that “ring” to their separate basic service, wireless service, a unified messaging system or some other platform so that any “call back” can be delivered through an “interconnected” telephony service. Users can have several numbers that operate simultaneously on one device or many devices. They may have more than one telephony client running at the same time, each with the same number or different addresses and each may be served by a different “provider,” or SIP, H.323 or other kind of server. The client or device may be programmed to not signal a number because it is associated with an IP PBX that treats the client or device like an old-style non DID station behind a traditional PBX or key system and the IP-PBX will signal its main number or some other number over the D channel. Indeed, an IP-PBX could be considered to be a form of “platform” or “gateway” for purposes of the NECA request, even though the operator of the IP PBX is not a “provider” of any “service” to the public and therefore cannot in any way be considered either a carrier or *quasi-carrier*.

Another significant problem is that systems like IP PBXs often use intelligent routing of certain sessions over the Internet rather than the ISDN PRI trunks, but the session will still result

in termination to an end-point on the PSTN. The IP PBX operator may choose to populate its LEC-assigned NANP address in the IP signaling and that is what will show up in the CPN parameter after it exits a gateway. The LEC that assigned the number, however, is not the “responsible party” because the LEC is not handling the call (session) in any way: it is not acting as the IXC for that call and the call never even touches the assigning LEC’s network at all. Yet NECA would use the number that is signaled to assign “responsibility” to the LEC that assigned the number appearing in the CPN parameter.

7. NECA’s demand that “all interconnected voice service providers who utilize a ‘platform’ or gateway to manage calls may not pass the number associated with the platform or gateway in the CPN, CN (or ANI), JIP, or any other parameter” would virtually guarantee that many calls would have no CPN at all – leading to allegations of CPN stripping. NECA’s ignorance of how gateways operate – indeed how everything on the IP side operates – will inevitably lead to charges of CPN stripping. Many voice-enabled IP-based services, applications and devices do not natively “hold” a telephone number. Some can be programmed to do so. Some softswitches can be programmed to signal an identifier (including a traditional phone number) that has been mapped to an edge device URI or MAC address, but the “gateway” is not always operated by the same party that runs the softswitch. The ILECs also seem to assume that each VoIP service, application, device or user has a discrete and exclusive “phone number” but that is simply not correct; often one number is pooled for use by many, much like old-style PBXs and key systems. The simple fact is that the only place where it is logical or even possible to “put” a phone number is at the gateway, but they rule that out. The ILECs are pushing a regime that will inevitably result in more charges of CPN stripping or manipulation.

8. FeatureGroup IP rigidly adheres to a principle of fidelity with regard to signaling information; it does not change any SS7-based information that it receives from its customers or interconnecting carriers. We do not oppose a rule that would require us to do what we have always consistently done. The problem is that NECA's demand that "Intermediate carriers and/or providers shall transmit all signaling data without alteration, except as otherwise provided by Commission rules and industry standards" conflicts with its other demands. What if a provider receives the number of a gateway or platform, or a number that is not a (10 digit) NANP number? What if there is no information in the CPN parameter? Must the provider pass that information unchanged (*e.g.*, populate no information)? This too will lead to allegations of participation in misrouting. Indeed, that is precisely what happened in the Texas case mentioned by NECA.⁴⁴ Once the evidence was heard it became clear that the problem was not that UTEX was changing the signaling information, but that it was not: when UTEX received traffic from platforms, customers or users that employed devices, services, applications or technologies which had no traditional number it passed on that traffic with the CPN information "without alteration." AT&T asserted that the "unaltered" CPN it received from UTEX was "invalid" and UTEX must therefore be supporting "traffic washing" and "misrouting" of long distance service. By the end of the case it was relatively clear that the traffic was not regular telephone toll that had originated on the PSTN, and AT&T ultimately admitted under oath that there was absolutely no evidence that UTEX or its direct customers were altering CPN information in any way.

The problem in the Texas case is the very one that NECA and the rest of the ILECs

⁴⁴ Petition p. 13, note 58. NECA accuses UTEX of "transmitting inaccurate call signaling information." It is difficult to confront accusers such as NECA that hide behind lawyers that know little of what they speak and simply repeat old and now-disproved rumors in a case like this that is resolved on a written record where there is no discovery or cross-examination. AT&T's similar counter-factual and technology-ignorant premises were destroyed once they were required to provide sworn testimony concerning and be subject to cross-examination regarding their scurrilous allegations.

assume away through hand-waving. They contend that there is not at present much traffic associated with new-technology applications, services or devices that do not need or use traditional telephone numbers. But the truth likely lies elsewhere. Much (and a growing percentage) of the “phantom” traffic they claim is just traditional telephone toll with calling party information stripped or altered is not that at all. Instead, their “phantom” traffic is probably the very thing they say is *de minimis* and they therefore assume is not yet a “problem.” In the very Texas case they misuse to support their case it was 80% of “the problem.” The interim solution will not solve the problem on either an interim or long-term basis.

9. As noted above, NECA’s request will not solve the perceived problem because the telephone number no longer can be assumed to be indicative of the “responsible party.” Many times the LEC that assigned the number is not involved in origination and is not the IXC. Often there is no IXC. Unless NECA and USTA are proposing to pay terminating access charges to themselves and other ILEC members when their own assigned numbers show up in the signaling as the originating number even though they are not the “responsible party,” the proffered solution will not solve the perceived problem.

FeatureGroup IP has already presented a proposal that provides a more reasonable solution to the real issues that exist as a result of the differing means by which voice-enabled IP applications, services and devices and traditional circuit switched telephony are supported and the information that should be available across the Internet and the PSTN.⁴⁵ That proposal expressly incorporates the sole salutary aspect of NECA’s request: an obligation to not alter calling party identification information if it exists. The ILECs, however, uniformly refuse to even discuss FeatureGroup IP’s technical solution. If action is so urgent, then the Commission should

⁴⁵ See, FeatureGroup IP Written *Ex Parte* Presenting Method to Uniquely Identify, Represent and Allow Callback to an IP endpoint from the Legacy Public Switched Telephone Network, CC Docket No. 01-92 (March 28, 2007); FeatureGroup IP *Ex Parte* Notice, Docket No. 01-92 (June 27, 2007)

adopt the solution put forward by FeatureGroup IP for it is technically sound and will give the ILECs all the information they need.

10. The Commission is obviously aware that telephone numbers no longer have geographic relevance, and the “default” numbers rule would be arbitrary, irrational and would unduly favor old technology and business models. This has been recognized for years with regard to mobile service and nomadic VoIP. The “jurisdiction” of a call cannot be determined from telephone numbers and telephone numbers are not a reasonable proxy now because society is increasingly nomadic and people carry their “numbers” with them across the world. The address represented by a telephone number is today useful only for routing purposes and is only a rough approximation of identity. It cannot any longer be used as a proxy for geographic relevance or to identify the “jurisdiction” of a call. The Commission must, once and for all, eliminate all reliance on the notion that a telephone number alone can be determinative of the “responsible party” or the geographic location of the calling or called party for wholesale rating purposes.

D. Whatever Rules NECA Seeks Must Be Separately Noticed For Comment Since They Would Bind Entities That Are Not Presently Covered By This Proceeding.

The Petition would have the Commission exercise regulatory authority over software applications, devices and individual users, as well as CPE manufacturers and vendors. The Commission’s statutory authority to implement the request is questionable and many affected entities have no idea that they would be bound.

FeatureGroup IP recognizes that the Petition is presented in the context of an existing rulemaking. Nonetheless, as least some aspects of the Petition go far beyond anything contemplated to date. For example, the Petition seeks to have the Commission promulgate an interim rule that would impose duties and obligations on software designers and vendors and

basic users, as well as CPE manufacturers and vendors. None of these entities are subject to regulation as common carriers, and the Commission's authority over CPE vendors is limited. The Commission's ancillary jurisdiction under Title I is not without boundaries and it should be carefully exercised only when absolutely necessary.

FeatureGroup IP must point out the complete disconnect between the ILEC's legal arguments concerning the breadth of Title I in this case with what they advocate when there is a possibility the Commission will impose regulations on the ILECs' affiliated or unregulated activities that have been deemed information services. ITAA's Docket 07-52 comments opposed regulation of information service network practices, and argued that the 1996 Amendments to the Act required reduced rather than increased regulation on information service providers under Title I. ITAA asserted that "the Commission must not impose constraints that would stifle innovation and investment, limit consumer choice, and generate increased costs."⁴⁶ USTA also opposed regulation, preferring to allow the "market" to operate to "ensure that providers continue to create services and applications that meet consumers' needs, and continue to invest in next-generation facilities."⁴⁷ On the other hand, USTA's February 12 *Ex Parte* Notice in Docket 01-92 says the Commission should use its Title I authority to regulate non-carriers. AT&T participated in the February 11, 2008 *Ex Parte* meeting with other USTA members, and presumably supports USTA's rule suggestions quoted above. But compare that to AT&T's Comments in Docket 07-52, which clearly implied some doubt that the Commission had any wide-ranging authority under Title I.⁴⁸ Another interesting comparison is NECA's 07-52

⁴⁶ ITAA February 13, 2008 Docket 07-52 Comments, pp. 1-4.

⁴⁷ USTA February 13, 2008 Docket 07-52 Comments, p. 2.

⁴⁸ See AT&T Comments p. 24, note 61 ["For purposes of these comments, AT&T will assume *arguendo*, but does not concede, that the Commission has regulatory jurisdiction to convert the non-binding principles of its *Policy Statement* into enforceable requirements. Cf. *FCC v. Midwest Video Corp.*, 440 U.S. 689, 700-09 (1979)"]

argument on p. 12, note 57 that “[r]esolving signaling issues associated with the services *as they are provided in today’s marketplace* will permit regulators and the industry to focus attention on more complex issues associated with the IP-enabled services of tomorrow.”⁴⁹ But in Docket 07-52 USTA says exactly the opposite: “Any imposition of network *regulations grounded in today’s conception* of the Internet would disserve consumers and providers, because such rules *would prevent the development of innovative offerings and business models*.”⁵⁰ These folks need to pick a story and stick with it.

NECA’s request that Commission regulate CPE manufacturers and vendors would have to be done in the context of Part 68, not part 51. But so far no notice has been given that Part 68 is subject to revision in this case. Similarly, any rules that regulate devices that are not covered by Part 68 could only be implemented using the Commission’s authority over intentional or unintentional radiators in Part 15. Again, no notice has been given that the Part 15 rules are subject to revision here, and there is obviously a real but as-yet unaddressed question whether Part 15 and §§301-303 are broad enough to impose operational requirements on entities that are subject to regulation only because of Radio Frequency issues when the purpose of the rule has nothing to do with RF but is instead posed purely to protect incumbent telephone companies. FeatureGroup IP still cannot conceive any statutory authority that may exist to regulate software companies, although perhaps some argument could be made to the extent the software is considered to be CPE under the Act.⁵¹ To be CPE, it is by definition not used by or on the

(invalidating assertion of Title I jurisdiction); *Motion Picture Ass’n of Am. v. FCC*, 309 F.3d 796, 806 (D.C. Cir. 2002) (same); *American Library Ass’n v. FCC*, 406 F.3d 689, 701 (D.C. Cir. 2005) (same).”]

⁴⁹ Emphasis added.

⁵⁰ USTA February 13, 2008 Docket 07-52 Comments, p. 2 (emphasis added).

⁵¹ See, e.g., Report and Order, *In the Matters of IP-Enabled Services; Implementation of Sections 255 and 251(a)(2) of The Communications Act of 1934, as Enacted by The Telecommunications Act of 1996: Access to Telecommunications Service, Telecommunications Equipment and Customer Premises Equipment by Persons with Disabilities; Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and*

premises of a carrier⁵² so that would eliminate any pretense by all concerned that the activity in issue is a telecommunications service and therefore provided by a common carrier.

NECA's proposed rules – either through ignorance or by design – clearly affect many entities that have no idea they are about the regulated or banned. The Petitioners are functionally instituting a new rulemaking that will directly affect the interests of persons that have not yet received any notice that their rights, duties and obligations are in issue. For this reason, the Petitioners must be required to follow the requirements in § 1.401 of the Commission's rules and the matter must be put out for separate comment.

E. There Are Often Legitimate Reasons Why Traditional Numbers Are Not Signaled; ILEC Systems Often Do Not Preserve or Recognize Originating Party Identity Markers That Are Sent Via SS7.

There are at least three reasons why a NANPA-based Calling Party Number may not be included in SS7 signaling:

1. ILEC Equipment or System Deficiencies. ILEC networks are distributed and heterogeneous by nature. They have different recording systems that do not always faithfully store the actual SS7 message content that connecting carriers send. As a result ILEC equipment and systems have differing levels of functionality and reliability. For example, FeatureGroup IP has seen firsthand that not all of AT&T's switches accurately and faithfully record the information in the SS7 CPN parameter that is in fact sent by FeatureGroup IP. AT&T's SS7 network sees the information and transmits it to the switch, but AT&T's Automated Message Accounting (AMA) recordings unilaterally change the SS7 information by adding or dropping digits or by screening the information in ways that caused AT&T's system to wrongly conclude

Speech Disabilities; The Use of N11 Codes and Other Abbreviated Dialing Arrangements, WC Docket No. 04-36, WT Docket No. 96-198, CG Docket No. 03-123, CC Docket No. 92-105, FCC 07-110, ¶¶21-29, 22 FCC Rcd 11275 (Jun. 2007).

⁵² See §153 (definition of "Customer Premises Equipment").

that FeatureGroup IP is not sending a “valid” number. Indeed, for a time AT&T’s switches stripped the information FeatureGroup IP sent via SS7 and recorded all zeros. AT&T then alleged that FeatureGroup IP had failed to send CPN. Before the ILECs start trying to impose additional requirements on connecting carriers, ESPs and users based on an alleged failure to receive CPN they should make sure that their own systems are not where rampant stripping and alteration is going on, like UTEX discovered is the situation with AT&T.

2. New technology. Many voice-enabled IP-based applications, services or devices that users install and employ are not tied directly to any existing LEC wireline network. There are an increasing number of IP-based, Internet-connected computing devices, many of which are nomadic or mobile. Many of these services have not been assigned a NANP number and therefore the LEC that first receives the PSTN leg of a call session cannot fill the SS7 CPN field with a 10 digit NANP number. Other devices or applications allow the user to decide whether calling party identification will be transmitted or not, and if so what number to use. Users can program these devices or applications to signal any number at all. Users increasingly program the device or application to signal a wireline number associated with a separate basic service, a wireless number, a URI, an 8YY or some other non-geographic number. This is quite prevalent, for example, with IP-PBXs that route “local” traffic over ISDN PRI trunks to the local LEC but other traffic over the IP backplane for processing through the Internet and ultimately termination on the PSTN through some arrangement. The IP-PBX owner will program the PBX to insert a LEC-assigned telephone number associated with ISDN PRI DID in the signaling for calls that are handled on the IP backplane. But the LEC that assigned the DID number to the IP-PBX owner is not necessarily the entity that supports the voice-enabled IP-based application/service. The result is that even if there is a traditional number in the signaling stream

the terminating carrier cannot just assume that the LEC code owner is the “responsible carrier” for any purpose, including any intercarrier compensation. The LEC code owner is not responsible for programming the IP-PBX and has absolutely no control over any actions by the IP-PBX owner/user.

The ILECs want to use the numbers for several purposes, and impose requirements and intercarrier compensation responsibilities on carriers and providers, but they completely fail to understand that the carrier that assigned the number may not be the relevant provider and has no power or control over whether a number is associated with an edge device or what number is used. Ultimately, the ILECs are asking this Commission to regulate users of new technology by requiring them to obtain a number from some carrier and then program the device to signal the number. But the ILECs are not specific about what number must be used, nor do they admit that they then want to use the number that is used to impose intercarrier compensation obligations on the issuing carrier.

3. True fraud (representing telephone toll traffic as ESP traffic). An IXC whose traffic is subject, under current Commission policy, to access charges could, in theory, utilize VoIP technology to fraudulently disguise the nature of the traffic they are sending. FeatureGroup IP’s IGI-POP tariff expressly prohibits use of the service by any carrier and we police that provision, so it is not happening on our network. We believe that it actually represents a small percentage of the entire universe of the traffic deemed to be “phantom.” Nevertheless, we acknowledge the technical possibility. But the petitioners have pretty much abandoned the pretense that they are really after IXC “misrouting” of traditional telephone toll service that originates and terminates on the PSTN, uses ordinary CPE and involves no change of content or an offer of enhanced functions. As FeatureGroup IP observed long ago in this case, the “IXC

misrouting” argument is a smokescreen, and it has now mostly dissipated although the ILECs still make some of the same noises in an attempt to put a skunk in the jury box. The Petition and the ILECs pushing it now unambiguously and unabashedly want the Commission to impose signaling requirements and access charges on voice-enabled IP-based applications, services and devices. While we have now spent many pages talking about signaling, the fact is the NECA request (especially when combined with the Embarq Forbearance Petition) is not really about signaling. As will be made clearer below, all of this is just an artful way to convince the Commission to quietly repeal the ESP entire exemption, since it would result in ESP traffic paying access charges for all traffic both to and from the Internet, and without regard to whether there is a “voice” anywhere in the session. These folks are trying to secure a wholesale change to compensation rules that is entirely in their favor and which would dramatically increase the prices that the ILECs’ own narrowband customers would pay to access the Internet or communicate with Internet end-points in any way. It is a massive rate hike for users that do not have a broadband alternative. And, it is a rate hike for broadband customers too. The ILECs’ own users are the ones that will pay for this because they are the ones that use and benefit from communications involving Internet end-points.

F. The Request For An Interim Order Imposing Signaling Requirements Is Really Just A Petition to Eliminate the ESP Exemption on an “Interim” Basis; The Commission Cannot Eliminate The Exemption Since It is Codified Into §§ 251(b)(5) 252(d)(2) And Is Not “Carved Out By § 251(g).

1. This is a smokescreen to eliminate the ESP Exemption.

The proponents are attempting to reclassify ESP traffic into switched access. The Petition would have the FCC functionally repeal the ESP Exemption – applicable to non-carriers – by “rating” calls based purely on the calling and called “numbers” regardless of the classification of the use or user/provider/service. The ILECs continue to claim that carriers are abusing the rules,

but what they really want is a change in the rules to include a new class of “quasi-carriers” that would be regulated for the first time and directly or indirectly subjected to access charges notwithstanding the fact that the application, service or device is supporting an enhanced/information service rather than a telephone toll (telecommunications) service.

Just a few years ago – when narrowband networks initiated calls to the Internet – NECA and the ILECs were arguing they should pay a unitary low rate or even enjoy “bill and keep.” Now that the Internet is calling rather than the other way around the ILECs want to be paid a very high price. What they consistently fail to understand, however, is that – regardless of whether the ILEC’s network is “originating” or “terminating” – the ILEC’s own users are merely using their telephone exchange service; they are not making or receiving telephone toll calls. And, more important, both parties to the call session derive value – so it seems incongruous from an economic perspective to force a “calling network pays access” regime on this fundamentally different communications form. The ILECs have absolutely no idea what their own users are doing and how our society has evolved with regard to communications.

All users (new technology and old technology) can benefit from the network effects created by interconnecting and interoperating the Internet and the PSTN in the most technologically and economically efficient manner. Legacy “TDM” no longer represents technological efficiency by any means. It seems absurd that the controllers of the narrowband PSTN should be entitled to extract monopoly rents purely because they have limited their own users to narrowband access. The narrowband PSTN providers seem to want to prevent their customers from fully participating in the Internet communications revolution. Access by or to narrowband customers is not so special and so qualitatively better than access by or to broadband Internet users that LECs should be entitled to payment for a “call” that is free when both users

are on broadband. Why should ILECs be paid when the quality is less than where it is free? Narrowband customers must be allowed to participate in the network effects and the evolutionary and revolutionary consequences of Internet-based communications.

The NECA Petition – if granted – would force new entrants, competitors and even individual users to “dumb down” their systems merely so the ILECs do not have to correct internal inconsistencies and deployment errors within their own networks. Both of these situations contradict the Commission’s Light Regulatory Touch policy, its policy of encouraging deployment of new technology, the policy that regulators should support innovation and competition and the policy of discouraging carriers from earning non-cost based revenues from intercarrier compensation. Let’s be frank. This is all about protecting the incumbents from disruptive competition and the revenue loss flowing from alternative applications and services made available as a result of technological advancement. This is the mirror image of ISP Reciprocal Compensation, except while we are still addressing predominately terminating traffic, the money will now go from competitors to incumbents, and at access rates. The price for enhanced services that interoperate with the PSTN will vastly increase. If the ILECs need more money, they should get it from their end user customers – and not interconnecting carriers or the interconnecting carriers’ customers – just like the Commission told CLECs they should do when they serve ISPs.

2. When IP is used for more than mere transmission and specifically when there is a change in content and/or an offer of enhanced functionality as a matter of law it is an enhanced/information service and is not a telecommunications service.⁵³ If an entity offers “a

⁵³ “Information service” is defined in § 153(20) of the Act:

(20) INFORMATION SERVICE.--The term “information service” means the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications, and includes electronic publishing, but does not

capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications” and/or “employs computer processing applications that act on the format, content, code, protocol or similar aspects of the subscriber’s transmitted information; provide the subscriber additional, different, or restructured information; or involve subscriber interaction with stored information” then it is an enhanced/information service. The ILECs’ insist that VoIP the traffic is not exempt because “voice” is involved, the calling (if there is one) and called numbers are associated with different local calling areas and/or that a session originates or terminates on the PSTN. But these factors provide absolutely no guidance on whether the service or application itself is enhanced/information or a telecommunications service. Enhanced/ information services that touch the PSTN must present a terminating number for the call to complete. The ILECs demand presentation of an originating number. Their logic is circular and self-fulfilling. And it completely ignores the entire history and premises behind the ESP Exemption.

On the PSTN everything “walks like a duck” and is a “voice service.”

The ILECs basically assert that if a “service” that “uses” the PSTN “walks like a duck” (in this instance telephone toll service provided by IXC’s is the “duck”) then it must be classified

include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service.

“Enhanced service” is defined at 47 C.F.R. § 64.702(a):

(a) For the purpose of this subpart, the term enhanced service shall refer to services, offered over common carrier transmission facilities used in interstate communications, which employ computer processing applications that act on the format, content, code, protocol or similar aspects of the subscriber’s transmitted information; provide the subscriber additional, different, or restructured information; or involve subscriber interaction with stored information. Enhanced services are not regulated under title II of the Act.

It is fairly well accepted that for the most part the two definitions overlap even though the exact wording is not the same. The only practical difference is that something is an enhanced service only if it is “offered over common carrier transmission facilities used in interstate communications” whereas information services need only be provided “via telecommunications.” Non-common carriers can supply the telecommunications component for an information service. In other words, all enhanced services are information services, but not all information services are enhanced services.

in the same way as the traditional telecommunications service genus it resembles regardless of whether it actually falls in a different genus or even class, order or family.⁵⁴ The ILECs essentially assert that a certain type of enhanced/information service should not be entitled to the “ESP Exemption” merely because it has “voice.” But every ESP communication that touches the PSTN in any way looks like a “voice” communication and every ESP communication looks like it is coming from and/or going to an “ordinary handset” when observed from the “PSTN.” The PSTN is optimized for audio, and more specifically the voice band.⁵⁵ In order to “work” on the PSTN, an enhanced/information service feature or application must operate within those confines. To the PSTN, a Class 2 FAX, a TTY/TTD and a party interacting with IVR, using keypad entry to gain access to information, are each making an ordinary “voice call.” To the PSTN, a modem and a cell phone are “ordinary” handsets.” Everything “walks like a duck” on the PSTN since the PSTN only works for those who waddle in proper fashion.⁵⁶ All “uses” of the PSTN are the same from a network perspective and incur essentially the same cost. As the Commission has repeatedly recognized, however, there are currently many different pricing differences based on considerations other than the cost imposed by or technical characteristics of each different kind of use.⁵⁷ The existing rules provide an exemption when there are

⁵⁴ The ILECs seek to classify based on the characteristics it can “see” from the PSTN. To AT&T Texas both a duck (Kingdom: *Animalia*; Phylum: *Chordata*; Class: *Aves*; Order: *Anseriformes*; Family: *Anatidae*; Genus: *Aythya*) and a duckbill platypus (Kingdom: *Anamailia*; Phylum: *Chordata*; Class: *Mammalia*; Order: *Monotrene*; Genus: *Ornithorhynchus*; Species: *anatinus*) would be considered to be part of the same genus when in fact they are not even part of the same class merely because they each have similar “mouths” when observed from the PSTN.

⁵⁵ The PSTN is designed to carry audible sounds between 300 hertz to 3000 hertz, which resembles the frequency band of normal “voice” conversations. Any application or device that traverses the PSTN must therefore operate on an audio basis within those confines. And the terminal device must appear to the network to be an “ordinary phone” even if it is in fact a modem or FAX machine.

⁵⁶ The PSTN does not see what occurs on the other side of an IP gateway where the “duck” magically transforms into a swan (Kingdom: *Animalia*; Phylum: *Chordata*; Class: *Aves*; Order: *Anseriformes*; Family: *Anatidae*; Genus: *Cygnus*). ILECs insist – based on what they see – that ESPs are not swans but are instead ordinary (as well as ugly, thieving and fraudulent) ducks.

⁵⁷ See, e.g., *Petition for Declaratory Ruling that AT&T’s Phone-to-Phone IP Telephony Services are Exempt from Access Charges*, Order, FCC 04-96, 19 FCC Rcd. 7457 at note 47 (2004) (“AT&T Declaratory Ruling”);

enhancements, a net change in form and/or a change in content. It would be contrary to the statutory scheme if the Commission were to deem an ESP swan to be duck and then roast it merely because it has been forced to resemble a duck to intercommunicate with the PSTN or it competes with the duck. IXC ducks are legal game. ESP swans are – at least at present – a protected species.

ESP “swans” started using the PSTN over the voice band when they learned how to duck walk. They have always had to waddle to do so, but have always been exempt. The FCC recognized the ESP exemption for specific reasons and those reasons have not changed. The ILECs now want to selectively narrow the scope of the ESP exemption merely because certain enhanced applications (but most decidedly not all) have become substitutable with traditional toll or telephone exchange service. But if the application meets the criteria it is still enhanced/information and is still “exempt.”

When viewed from the IP side of the gateway a “voice” communication is – like all other services and applications – merely one of many different kinds of potential enhanced/information service “session.” The IETF’s RFC 3398 describing the Session Initiation Protocol (“SIP”), for example, says on page 3:

SIP is an application layer protocol for establishing, terminating and modifying multimedia sessions. It is typically carried over IP. Telephone calls are considered a type of multimedia session where just audio is exchanged.⁵⁸

Further Notice of Proposed Rulemaking, *In the Matter of Developing a Unified Inter-carrier Compensation Regime*, CC Docket No. 01-92, FCC 05-33 ¶¶ 3, 5 (rel. Mar. 2005).

⁵⁸ *Integrated Services Digital Network (ISDN) User Part (ISUP) to Session Initiation Protocol (SIP) Mapping*, RFC 3398, © The Internet Society, 2002, available at <http://www.ietf.org/rfc/rfc3398.txt>.

Most VoIP codecs⁵⁹ require less than 200 kbps and some work at or below 64 kbps.⁶⁰ Skype often works with a basic 56 kbps modem. Indeed, some of the better systems now need only 4 Kbps. VoIP between end use customers is not limited to broadband at the physical layer, and almost any “session” handled over a dial-up connection could have a “voice.” The ILECs want the Commission to rule that if there is “voice” then access charges are due. There can be “voice” on virtually any ESP session. Most ESPs cannot determine on a real time basis which sessions will include “voice” or if both ends of a communication will be on the PSTN. One cannot assume that a call coming in that possesses something that looks like a 10-digit number came from the PSTN. It might be an IP address. Nor can one assume that a call addressed to a 10-digit number will terminate on the PSTN. It may go to a Vonage-like device, or hit an enhanced platform and be translated into an email with an audio attachment. The platform might even perform real-time language translation.⁶¹ An ESP that has no relationship with either the calling party or the called party has no way to determine what kind of “handset” is being used at either end.⁶²

When VoIP interacts with the PSTN so as to conduct a session there is necessarily a change in form from “TDM” to IP or from IP to “TDM.” Sometimes there is only one conversion. Other times there are multiple conversions. When two end-points are on the PSTN

⁵⁹ It may be that “telecom” regulators do not know what a “codec” is, which would explain their incredulity when one tries to explain that VoIP is an enhanced/information service. See, <http://en.wikipedia.org/wiki/Codec> and http://en.wikipedia.org/wiki/Audio_codec. Read the description. Then try to conclude that a standard audio codec is not a computer program that “generates, acquires, stores, transforms, processes, retrieves, utilizes and makes available information” and/or “employs computer processing applications that act on the format, content, code, protocol or similar aspects of the subscriber’s transmitted information; and provide the subscriber additional, different, or restructured information” and even allows “subscriber interaction with stored information.” VoIP is enhanced/information service on this ground alone.

⁶⁰ Jeff Pulver Blog, “*The Second Glove is Thrown Down - Let the Communications Wars Begin*” December 5, 2005, available at <http://pulverblog.pulver.com/archives/003386.html>.

⁶¹ See <http://arstechnica.com/news.ars/post/20071219-new-google-talk-bots-bring-real-time-translation-to-im.html>.

⁶² Those characteristics, in any event, make no difference if the ESP does in fact change content or provide enhanced functions. The Commission recognized as much in the *AT&T Declaratory Ruling*.

there is admittedly not a “net” change in form if you are looking only at the two PSTN end-points.⁶³ But that is not the end of the inquiry by any means, nor can it be determinative of the regulatory status or entitlement to the “ESP Exemption” by individual providers.

ESPs change the “form” (*e.g.*, engage in protocol conversion) from “TDM” to IP in order to take advantage of new switching technology and to be in position to offer enhanced functions to their customers. While converting to IP does generate transmission cost savings, it has other benefits as well. Once the information is converted to digital and is in IP format a host of features, functionalities and applications/services can be offered. NECA and Embarq would likely argue that if a “TDM” call is converted to IP and then subsequently converted back to “TDM” on one leg then access charges apply even if there is a change in content and/or the provider offers enhanced functions. That is not the law.

All of the information that impacts the legacy handset and causes the mouthpiece to vibrate, thus generating the electrical impulses that are transmitted across a legacy network⁶⁴ are passed to the ESP that is sitting “in the middle.” If necessary, the ESP converts to IP and as a consequence is able to offer enhanced functions. Because of the way the technology works, the information content⁶⁵ is quite often changed before it is then sent on to the other PSTN user’s handset. The information “as sent” by one end is different than the information “as received” at the other end. One must consider both whether there are “enhanced/information” functions and whether there is a change in content. The “change in content” relates to whether something is

⁶³ What if there are three end-points and one of them is IP-based? There is a “net” change for the IP end-point but no “net” change for the two PSTN end-points. Does the test look at the PSTN “net” or the IP “net?” The PSTN will probably not even “know” that there is a third non-PSTN end-point.

⁶⁴ See http://www.sciencetech.technomuses.ca/english/schoolzone/Info_Sound.cfm#handset “How does the telephone handset work?”

⁶⁵ The information “content” for purposes of §153(43) is not merely the “words”; it is the electrical representation of all the sounds received by the handset, which include background noise and other aural information as well as spoken words. The entire “substance, purport or meaning” – including all the background noise – is what must be considered when applying the “change in content” test.

“telecommunications” whereas “enhanced functions” is a shorthand reference to the various criteria set out in the definitions of “enhanced service” or the slightly broader “information service.”

In a legacy PSTN-PSTN call there is no change in content. The “information” sent from one handset is the same “information” received by the other handset. Silence and background noise is faithfully transmitted across the network and reproduced at the other end, so long as it fits within the voice band. Since IP networks generally use best-effort datagram-based network protocols to transmit media, a small fraction of the media packets are often lost in transmission. Engineering and information-theoretic techniques attempt to correct this issue. But by doing so, the system is providing the subscriber “additional, different or restructured information.”

VAD and Silence Suppression have multiple uses. Comfort Noise prevents the conversing parties from wrongly thinking the call has been disconnected. The content changes are desirable and avoidable—each can be “turned off” or “tuned” by the provider and the services/application will still work. These functionalities and attributes are therefore “intended to be a service rendered to a customer.”⁶⁶ If the difference was not “evident” or “perceptible” then options for turning these functions on and off or for tuning them would not be necessary.⁶⁷

The conversion to IP enables mid-call processing capabilities that support novel features and services to PSTN users as well as IP-based end-points. It is not done there merely for the

⁶⁶ But see Supplemental Notice of Proposed Rulemaking, *In the Matter of Amendment of Sections 64.702 of the Commission’s Rules and Regulations (Third Computer Inquiry); and Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorizations Thereof Communications Protocols under Section 64.702 of the Commission’s Rules and Regulations*, CC Docket No. 85-229, Phase II, FCC 86-253, ¶¶21-23, n. 30-31, (rel. Jun. 1986).

⁶⁷ It would be wrong to believe that users do not perceive any enhancements. The users obviously know they are receiving language translation, speech-to-text, text-to-speech or that the system is reading an email or a web page to them.

convenience of the network, to correct network issues, to preserve the content of subscriber content or to make new technologies interwork with the old.⁶⁸

Conversion and the inter-working of legacy TDM protocols to IP makes even PSTN-PSTN calls eligible for “enhanced/information” status if IP is used for more than just transmission. “IP in the middle” is merely the first step of the analysis. While conversion for transmission alone may not preserve the ESP Exemption, conversion so as to enable the offer of enhanced functions and/or that is accompanied by a change in content – even if there is a subsequent “reconversion” – means the session is not a telecommunications service call, but is instead an “enhanced/information” service call. This is particularly so when there is both a change in content and an offer of enhanced functions.

The ILECs would probably say these features are merely “adjunct-to-basic” to a telecommunications service. If they did they would be wrong. In most cases the ESP is not providing any telecommunications service, so the enhanced offerings are primary and unitary, not adjunct. Further, in every case the enhanced features and functions are not part of a “necessary precondition” to making an ordinary phone call. They are instead invoked or used *during* the call at the request of the user; they all involve meaningful subscriber interaction with the platform and they are a result of IP technology.⁶⁹ These are enhanced/information services.

As noted above, these functions are “on behalf of the user.” Even more important, these very same functions are also in use at the edge when the end-point is not a traditional hand-set.

⁶⁸ See, e.g., Memorandum Opinion and Order, *In the Matter of Independent Data Communications Manufacturers Association, Inc. Petition for Declaratory Ruling That AT&T's InterSpan Frame Relay Service Is a Basic Service; and American Telephone and Telegraph Company Petition for Declaratory Ruling That All IXC's be Subject to the Commission's Decision on the IDCMA Petition*, DA 95-2190, 10 FCC Rcd 13717 (rel. Oct. 1995)

⁶⁹ Cf, Order and Notice of Proposed Rulemaking, *In the Matter of AT&T Corp. Petition for Declaratory Ruling Regarding Enhanced Prepaid Calling Card Services; Regulation of Prepaid Calling Card Services*, WC Docket No. 03-133, WC Docket No. 05-68, FCC 05-41, ¶¶14-21, 20 FCC Rcd 4826, 4830-4833 (rel. Feb. 2005); Order, *In the Matter of Federal-State Joint Board on Universal Service, Appeal of Administrator's Decision, Radiant Telecom, Inc.*, Filer ID 822268, CC Docket No. 96-45, DA 07-2922, 22 FCC Rcd 11811 (rel. Jun. 2007).

Many IP phones and softphone clients allow the user to select the codec that is used and to adjust the extent to which the codec algorithms change the content, so the result is often entirely within user rather than provider control.⁷⁰

The ILECs probably maintain that the only permissible intelligence must necessarily reside within the network and users cannot be allowed to exercise any choice or control. But this is emphatically not so with new technology. This is made evident by patent litigation between AT&T and Microsoft over codec software Microsoft used as part of the Windows Operating system and exists in every Microsoft OS-based PC that has been sold to consumers for several years.

“AT&T’s patent (‘580 patent) is for an apparatus (as relevant here, a computer) capable of digitally encoding and compressing recorded speech. Windows, the parties agree, contains software that enables a computer to process speech in the manner claimed by the ‘580 patent. In 2001, AT&T filed an infringement suit in the United States District Court for the Southern District of New York, charging Microsoft with liability for domestic and foreign installations of Windows.”⁷¹

The patent in *Microsoft v. AT&T* is RE32580, Digital speech coder “An improved speech analysis and synthesis system wherein LPC parameters and a modified residual signal for excitation is transmitted: the excitation signal is the cross correlation of the residual signal and

⁷⁰http://www.cisco.com/en/US/products/sw/voicesw/ps1860/products_administration_guide_chapter09186a00800b42b8.html;
http://www.intel.com/technology/itj/2006/volume10issue01/art05_real_time_multimedia_collaboration/p06_user_experience.htm;

http://www.asteriskguru.com/tutorials/thomson_st2020.html;

http://www.phonzo.com/phonzo/download/X-PRO_PocketPC_Users_Guide.pdf;

Electronic Communications Committee (ECC) Report 51, VOICE QUALITY OVER IP BASED NETWORKS, (July 2004), available at <http://www.erodocdb.dk/Docs/doc98/official/pdf/ECCREP051.PDF>.

⁷¹ *Microsoft Corp. v. AT&T Corp.*, 127 S. Ct. 1746, 1753 (U.S. 2007).

the LPC-recreated original signal.” The “Brief Summary of the Invention” clearly describes how edge device systems change content.⁷²

AT&T also has a subsequent patent referencing the 580 patent. Patent 6832188 “System and method of enhancing and coding speech.”⁷³ The Abstract describes it as “A system and method that enhance and code a digitized speech signal by breaking the digitized speech signal into constituent parts. The method comprises applying at least two speech enhancement processes to produce at least two enhanced digitized speech signals and computing a coded speech signal by processing the at least two enhanced digitized speech signals.” The “Background of the Invention” again directly describes discernable content changes that improve the user’s experience.

VoIP users – as well as VoIP providers – “generate” a change in content. Every single VoIP client – including Skype, GoogleTalk and stand-alone IP phones and those behind IP PBXs – is therefore using an enhanced/information service. It does not matter whether there is “voice,” modem screech or donkey brays. If there is a change in content, and if enhanced features are offered, it is an enhanced/information service and is not a telecommunication service.

It should be black letter law by now that while ESPs may use telecommunications or be provided via telecommunications⁷⁴ what they provide or offer is not telecommunications services

⁷² Available at <http://www.freepatentsonline.com/RE32580.html>.

⁷³ Available at <http://www.freepatentsonline.com/6832188.html>.

⁷⁴ There is of course a “telecommunications” component to the overall offering. ESPs obtain telecommunications and then add the enhanced/information parts, and the resulting output is an enhanced/information service. There must be a telecommunications component for something to be an enhanced/information service, since the concept is expressly embedded in the definitions of those terms. The “fact” that there is “telecommunications” cannot serve to eliminate the ESP Exemption. The Exemption is all about the price that is to be paid for the required telecommunications input. If DSL and cable modem offerings are enhanced/information service – even though the telco or cable company supply the telecommunications input – then there can be no doubt whatsoever that VoIP is an enhanced/information service when the ESP obtains its telecommunications input from another carrier like a FeatureGroup IP entity. *See, Nat’l Cable & Telecomm. Ass’n v. Brand X Internet Svcs.*, 545 U.S. 967, 974, 125 S. Ct. 2688, 162 L. Ed. 2d 820 (2005) (“*Brand X*”); *Time Warner Telecom, Inc. v. FCC*, 2007 U.S. App. LEXIS 24204 (3rd Cir. Oct. 16, 2007).

since there often a change in form and there is always a change in content. Every court that has addressed the question has agreed that VoIP is an enhanced/information service – and is not a telecommunication service – when there is a change in form, if there is a change in content or if non-adjunct to basic enhanced features and functions are made available. *Southwestern Bell Tel., L.P. v. Mo. PSC*, 461 F. Supp. 2d 1055 (D. Mo. 2006); *Vonage Holdings Corp. v. Minn. PUC*, 290 F. Supp. 2d 993, 996 (D. Minn. 2003), *aff'd* 394 F.3d 568 (8th Cir. 2004); *AT&T Declaratory Ruling, supra*.

3. ESP traffic – including media sessions that include representation of the human voice as part of the information that is exchanged – is not “access” traffic. It is subject to §251(b)(5), not access. Section 251(b)(5) on its face applies to all “telecommunications.” Only those matters covered by the access charge regime as it existed prior to enactment of the 1996 amendments are “carved out” pursuant to §251(g). The “carve out” applies only to incumbents’ access services, not to services provided by CLECs. ILEC-originated calls destined for ESPs served by CLECs are not carved out and are thus covered by §251(b)(5) and its companion, §252(d)(2). *Worldcom v. FCC*, 288 F.3d 429 (D.C. Cir. 2002). Similarly, traffic received from an ESP that a CLEC then hands off to an ILEC for termination to a legacy end user is not “carved out” because this type of traffic also did not exist when the Act was passed. It could not have been subject to access charges. *Id.* It is only when a CLEC assumes the role of an IXC and provides “telephone toll” service that the CLEC is subject to the access regime “carved out” of §251(b)(5) by §251(g). Embarq’s Petition, notably, never expressly claims that either CLECs or ESPs involved in VoIP are IXCs or that either is providing “telephone toll” service.

ILEC provision of service to enhanced/information service providers is called “information access” and it is part of the “access regime” although information access is actually

provided through local rates because of the ESP Exemption. Section 251(g) therefore codified the so-called “ESP Exemption” from regular switched access charges, but only for ESPs that directly receive service from an ILEC. Under §251(g) the FCC may to a limited extent modify the “exemption” but it can do so only in a rulemaking.

When a CLEC receives traffic from an ESP and hands it off to an ILEC, the traffic is “telecommunications,” falls squarely within §251(b)(5) and is not carved out by §251(g). *Worldcom, supra*. On the other hand, it is temporarily not subject to FCC rule 51.701(b)(1), but is instead still covered by the *ISP Remand Order* as changed by the *Core Forbearance Order*. The statute and the rule do not completely overlap, and will not until the Commission resolves the D.C. Circuit’s remand in *Worldcom*. But that is not a concern here because the dispute is not whether §251(b)(5) or the *ISP Remand* regime applies. The conflict arises because the ILECs want to subject this traffic to access charges, and that would violate both §251(b)(5) (as well as its companion §252(d)(2)) and the *ISP Remand* regime.

If one considers traffic a CLEC receives from an ESP and hands to an ILEC for termination to a legacy end user to be a form of “jointly-provided service” by both LECs to the ESP then the ILEC’s portion is subject to the ESP Exemption from access, so the ILEC cannot assess access charges on the ESP. Since it is a joint service to the ESP the ILEC cannot assess any charges on the CLEC. *See AT&T Declaratory Ruling*, note 92.

Even if the FCC eliminates the “information access” category in terms of ILEC service to ESPs it still cannot lawfully impose “exchange access” charges on ESPs. ESP’s do not provide “telephone toll” service as defined in §153(48) since the connectivity they obtain from LECs is not “for the purpose of origination or termination of telephone toll service.” Hence they do not obtain “exchange access” as defined in §153(16). The only alternative is “telephone exchange

service.”⁷⁵ This means that when an ILEC serves an ESP but another LEC is also involved, the intercarrier compensation for this telephone exchange traffic destined for and received from an ESP must still follow the requirements in §§251(b)(5) and 252(d)(2) – which Feature Group IP submits has the same functional result as the law requires today under the current rules. The only question is whether to use the FCC’s \$0.0007 rate or the state rate. To be a lawful candidate, it must meet additional cost criterion in §252(d)(2). If both do, then both are lawful alternatives.

As the Commission noted in the *ISP Remand Order*, §251(b)(5) is not limited to “local” traffic; it applies to all “telecommunications.” As a consequence, regardless of the physical location of the end-points and regardless of whether there is one ILEC or an ILEC and a CLEC, a call session destined for or received from an ESP is not subject to switched access unless the ESP is somehow providing “telephone toll service.” The Act does not allow or give discretion to impose access charges for intercarrier compensation purposes as between an ILEC and a CLEC that jointly handle traffic destined for or received from an ESP that does not provide telephone toll service. Nor can the ILEC impose access charges on the CLEC unless the CLEC is providing telephone toll. ESP traffic exchanged between an ILEC and a CLEC is absolutely subject to §251(b)(5) and §252(d)(2).

Calls to an ESP are and never have been “classified” so as to result in access charge liability based on where the communications “go” after processing by the ESP platform. The communications go to or over the “Internet” or some other enhanced/information network end-point. This is so even if the session ultimately results in one or more termination points on the PSTN at the other end. The “address” (whether in the form of an E.164 address or a URI) and location of the addressee at the time of receipt is irrelevant. The ILECs’ fervent attempts to

⁷⁵ *Bell Atlantic Telephone Companies v. FCC*, 206 F.3d 1 4-5, 8-9 (D.C. Cir. 2000).

classify VoIP sessions based on the deemed end-points for intercarrier compensation purposes is a stark and radical change that has no legitimate basis.

Section 251(b)(5) does not cover only “telecommunications service” but instead addresses the broader term “telecommunications.” The Commission recently ruled that “interconnected VoIP providers” offer “telecommunications”⁷⁶ so the traffic is covered by §251(b)(5). “VoIP traffic” (when more than just IP transmission is involved) as a distinct category did not exist in 1996, but it is an enhanced and/or information service. The intercarrier regime for VoIP traffic is covered by §251(b)(5), not switched access and it is not “carved out” by §251(g). And this is so regardless of the location of the end-points or the “numbers” (whether the “number” is an E.164 address or something else) assigned to the end-point device. The ILECs’ attempt to classify traffic based on CPN or deemed end-points in order to take a particular session out of §251(b)(5) and subject it to switched access will *prima facie* violate the Act.

When an ILEC and a CLEC collaborate as LECs on a VoIP call, §251(b)(5) and the “additional cost” standard in §252(d)(2)(A)(ii) directly apply. The ILECs try to deny this plainly obvious statutory scheme as part of their attempt to arbitrage intercarrier compensation so that they never pay anything and always recover access, regardless of direction, but the plain result of the Act and the rules is that VoIP traffic (when more than mere IP transmission is involved) is not subject to access charges under the current rules and the statute.

⁷⁶ Report and Order and Notice of Proposed Rulemaking, *In the Matter of Universal Service Contribution Methodology; Federal-State Joint Board on Universal Service; 1998 Biennial Regulatory Review -- Streamlined Contributor Reporting Requirements Associated with Administration of Telecommunications Relay Service, North American Numbering Plan, Local Number Portability, and Universal Service Support Mechanisms; Telecommunications Services for Individuals with Hearing and Speech Disabilities, and the Americans with Disabilities Act of 1990; Administration of the North American Numbering Plan and North American Numbering Plan Cost Recovery Contribution Factor and Fund Size; Number Resource Optimization; Telephone Number Portability; Truth-in-Billing and Billing Format; IP-Enabled Services*, WC Docket Nos. 06-122, 98-170, 99-200, 98-171, 96-45, 95-116, 92-237 and 90-571, NSD File No. L-00-72, WC Docket No. 04-36, FCC 06-94, 21 FCC Rcd 7518, 7539-7940, ¶41 (rel. June 27, 2006).

II. Opposition To Embarq Forbearance Request

Many of the points addressed above also apply to Embarq's Petition, even though it purports to apply only to "price" issues. FeatureGroup IP therefore requests that all the comments in this pleading be considered in the context of both cases. Notwithstanding the style in Docket 08-8, Embarq's request is not at all limited. They want to completely eliminate the ESP Exemption, and radically increase the price their own users pay to access the Internet or communicate with an Internet-based end-point. While they claim the request is "limited" to "voice" "IP-PSTN" traffic that is not in fact correct once you read the specific relief they request. They want to impose a "modem tax." At the same time, the Petition is internally inconsistent and confusing: is Embarq proposing to charge interconnecting CLECs access charges for ESP traffic, or is Embarq proposing to kidnap the CLECs' ESP customers and then force the ESPs to directly purchase switched access?

Like NECA, Embarq makes it appear there is some horde of previously-unseen feral pigs invading the homestead, killing all the livestock and tearing up all of the carefully-tended gardens. One gets the impression these unclean interlopers are "using" Embarq's precious network and avoiding any responsibility whatsoever for the costs they impose. The truth lies elsewhere.

The dispute here is not about "free" and Embarq completely fails to recognize that one end (and often both or many ends) of the communications session is being employed by their own users. The question is whether the traffic is to be subject to the mandatory §252(d)(2) cost-based regime when Embarq provides "transport and termination" (and pays a mutual and reciprocal price when one of its subscribers originates a session to another network) or, whether

Embarq is entitled to recover above-cost access charges (outside of §251(b)(5) and its companion §251(d)(2)) for calls that either originate or terminate on its network.

The question is whether Embarq's own users who are communicating with the Internet will continue to enjoy that experience as part of their telephone exchange service, or will end up subsidizing themselves or other Embarq users by directly or indirectly paying access charges whenever an Embarq customer has the temerity to “talk” to their neighbors, family, friends or associates and the Internet is involved. These higher costs do not just disappear; they will be passed on. Embarq may want to charge one or more “providers” but it is its own users that will end up either footing the bill or losing out in the Internet experience. Embarq wants to institute the previously mythical “modem tax” on its own end user customers.

Embarq – like NECA – uses muddled terms that lack clarity, with the result that its request is completely opaque and impenetrable. It is impossible to discern who Embarq wants to charge and what traffic it wants to be subject to the charge. No relief can be granted until Embarq specifies just who will receive the access bill and precisely what traffic will be subject to access. Finally, Embarq completely overlooks the massive dislocations a grant of its request (or NECA's) would cause to the Embarq's network, CLECs' networks and ESP's links to the PSTN. The latter point is addressed under a separate heading, after FeatureGroup IP's discussion of the rest of Embarq's request.

A. Embarq wants to recover access charges against both ESPs and interconnecting CLECs that serve ESPs for the same traffic.

Embarq's Petition requests the right to recover access charges from ESPs. The specific relief it seeks appears in two contiguous sentences that appear on pages 17 -18:

Forbearance here involves three parts. The Commission should (1) forbear from enforcing the ESP exemption, as adopted by Commission orders, and (2) section 69.5(a) of its rules to IP-originated voice traffic that terminates to the PSTN.

Finally, the Commission should (3) forbear from enforcing 47 U.S.C. section 251(b)(5) to provision to non-local traffic terminated as voice traffic on the PSTN.

...

Section 69.5(a) of the Commission's rules creates a separate class of access charges for "end users," as distinct from carriers governed by section 69.5(b). The Commission should forbear from allowing any application or enforcement of section 69.5(a) where any service provider might claim that IP-to-PSTN traffic qualifies it for treatment as an end user, rather than paying appropriate access charges under section 69.5(b). Section 251(b)(5) establishes carriers' duty to establish reciprocal compensation arrangements. The Commission should forbear from application or enforcement of section 251(b)(5) where any service provider might claim its non-local IP-to-PSTN traffic is subject to reciprocal compensation.⁷⁷

Embarq says it wants the Commission to eliminate the treatment of ESPs as end users for purposes of 47 C.F.R. §69.5(a).⁷⁸ In other words, ESPs will instead treated as carriers under 69.5(b) (even though an entity that does not provide a telecommunications service is not a carrier), and therefore subject to access charges. Although Embarq does not mention 69.3(m),⁷⁹

⁷⁷ Embarq also makes clear its desire to directly assess ESPs in other parts of its Petition:

Petition, pp. 17-18: "Section 69.5(a) of the Commission's rules creates a separate class of access charges for "end users," as distinct from carriers governed by section 69.5(b). The Commission should forbear from allowing any application or enforcement of section 69.5(a) where any service provider might claim that IP-to-PSTN traffic qualifies it for treatment as an end user, rather than paying appropriate access charges under section 69.5(b). Section 251(b)(5) establishes carriers' duty to establish reciprocal compensation arrangements. The Commission should forbear from application or enforcement of section 251(b)(5) where any service provider might claim its non-local IP-to-PSTN traffic is subject to reciprocal compensation.

Petition pp. 20-21: "It is unreasonable to discriminate against traditional carriers, by making them contribute terminating access charges on non-local traffic, when interconnected VoIP providers claim exemption for their non-local calls terminated on the PSTN. Forbearance would reduce discrimination, by reiterating that all service providers are subject to the same rules."

⁷⁸ The pertinent parts of 69.5 provide:
Sec. 69.5 Persons to be assessed.

(a) End user charges shall be computed and assessed upon public end users, and upon providers of public telephones, as defined in this subpart, and as provided in subpart B of this part.
(b) Carrier's carrier charges shall be computed and assessed upon all interexchange carriers that use local exchange switching facilities for the provision of interstate or foreign telecommunications services.

⁷⁹ (m) End user means any customer of an interstate or foreign telecommunications service that is not a carrier except that a carrier other than a telephone company shall be deemed to be an "end user" when such carrier uses a telecommunications service for administrative purposes and a person or entity that offers telecommunications services exclusively as a reseller shall be deemed to be an "end user" if all resale transmissions offered by such reseller originate on the premises of such reseller.

the Commission would also have to also “forbear” from including ESPs within that definition, but Embarq did not request that this be done, so the Commission cannot grant relief that was not requested. Another problem is that Embarq did not state with particularity that it wants the Commission to “forbear” from the application of that part of 69.5(b) that expressly imposes “carriers’ carrier” charges only on “interexchange carriers that use local exchange switching facilities for the provision of interstate or foreign telecommunications services.” “Forbearance” from end user charges – which is what Embarq requests – is one thing; imposition of “carrier’s carrier” charges is quite another. If the Commission does what Embarq asks, it will merely provide that ESPs do not pay “end user” charges. In order for access charges to actually apply to ESPs that are not *carriers* and do not provide *telecommunications services* the Commission would have to grant more relief than Embarq has expressly requested in terms of the rules it specifies. For this reason alone, the entire Petition must be denied.

But let us set that problem aside and assume that the Commission for some reason does “forbear” to the point that ESPs are subject to access charges. They would then be *quasi-carriers* and they would have to obtain PSTN connectivity under LECs’ switched access tariff offerings.⁸⁰ This is made clear by the other half of the request – forbearance “from application or enforcement of section 251(b)(5) where any service provider might claim its non-local IP-to-PSTN traffic is subject to reciprocal compensation.” In other words, the ESP would no longer buy a PRI from a CLEC with the traffic handled under §251(a)(1) or (c)(2), routed over §251 interconnection facilities and subject to §251(b)(5) (or §201 as decreed by the *ISP Remand*). Instead, the ESP would obtain Feature Group D and connect to an access tandem operated by a CLEC or ILEC, and perhaps also obtain direct end office trunking and end office switching out

⁸⁰ The extraordinary and massive network reconfiguration this would require as ESPs move from CLEC vendors to ILEC tandem and end-office providers is addressed below. But please consider the functional result: the ILECs just stole away the CLEC’s oldest and most reliable customers.

of the proper LEC's access tariff. Every LEC involved in handing originating and/or terminating traffic would be a "joint" provider, and the billing and payment would be handled under traditional MECAB or SECAB arrangements. Each LEC would be a direct provider of service to the ESP, and no LEC would be responsible to any other LEC for the access charges that are incurred. This would be traditional jointly-provided access, just as it is done for IXCs.

Presumably, further (although again, Embarq did not so state), all traffic would pay access but would be "jurisdictionalized" based on CPN, entry/exit or PIU. Any traffic the ESP handles that is deemed to be intrastate would incur intrastate access charges. Within this category would be even those calls between two end-points in the same local calling area and have telephone numbers associated with the same local calling area. Since ESPs would no longer pay "end user" charges, they would pay access for even "local" calls.⁸¹ Vonage and the cable companies will pay access on every call, even those involving "local" numbers.

ESPs would be treated like carriers, but would not have carrier benefits or rights. They would pay access for all traffic, not just "interexchange" traffic. That low-cost VoIP we have all been hearing about, and that rural users employ to avoid Embarq's excessive toll rates just went away. The FCC will totally end all flat-rate and "free" calling if there is a PSTN end-point. Embarq complains of discrimination and unfair advantage, but its request does not lead to balance. It only creates discrimination and advantage on the other side. Embarq wins on all sides of the equation.

⁸¹ There likely would be one exception to the class of ESPs that have to pay access: Embarq's own operations. All those functions listed in note 27 would be subject to access charges under Embarq's Petition, but we seriously doubt Embarq would subject its own offerings to that pricing regime, either expressly or implicitly. That result would be patently anticompetitive.

But wait, there is more. The statements on pages iii-iv,⁸² 3-4⁸³ and 5-6⁸⁴ indicate that Embarq is not content to steal away a major part of the CLECs' business. They apparently want to also assess access charges on any CLEC that somehow manages to keep any ESP customers, perhaps by sending the entire access bill to the CLEC and forcing it to act as the collection agent for Embarq. That, however, is not how it works in the access regime. Embarq is just plain wrong when it argues it should be able to bill a joint access provider when a third party entity routes an "access" call to one LEC that provides some but not all of the transport, or provides the access tandem function and then hands it off to another LEC for the final end office termination to the called party. This part of the Petition is just bizarre, and it most certainly cannot be granted. Even if the Commission decides to eliminate one nascent and fragile communications sector (VoIP), it most certainly should not execute a *coup de grace* and finish off all the CLECs too. It will be hard enough to survive losing most of the ESPs to the ILECs; being the guarantor for the ILECs' access entitlement would be over the top.

⁸² "The exemption, moreover, applies only to ESPs. It has never applied to telecommunications carriers. Embarq does not receive these voice calls from ESPs, but from carriers that deliver ordinary voice calls for termination on the PSTN. When they are delivered by those carriers to Embarq, they have already been converted into ordinary voice calls, using the same technology format as any traditional voice calls."

⁸³ "Moreover, most of the entities that seek to avoid access charges through this misapplication of the ESP exemption are not ESPs. They are *telecommunications carriers* that serve as the connection between VoIP providers and terminating LECs. The ESP exemption plainly has never applied to *them*. Moreover, when those interconnecting carriers route an IP-originated call to Embarq for termination on the PSTN, it is no longer in IP technology. It has already been converted into TDM format, the transmission form used by all other voice calls on the PSTN."

⁸⁴ "Calls originating as interconnected VoIP use the PSTN no differently than any other voice traffic terminated on the PSTN. Carriers routing interconnected non-local VoIP calls to LECs for termination on the PSTN have always been subject to access charges. For the same reason, non-local IP-to-PSTN traffic cannot lawfully be routed through local interconnection trunks for purposes of reciprocal compensation under section 251(b)(5) of the Act. ... The Commission can resolve these problems by forbearing from any application or enforcement of the ESP exemption to the extent it may be claimed to apply to IP-to-PSTN voice traffic. Forbearance would resolve the growing problem of access evasion by carriers of IP-to-PSTN voice traffic, and would reduce the disputes and problems that regulatory arbitrage engenders."

B. Embarq reinvents the history and purpose of the ESP Exemption and the Commission's descriptions of the scope of the exemption.

Those who support users who employ new-technology IP-based application, services and devices are doing precisely what the Commission wanted to encourage when it first recognized and created the “pure communications” and “data processing” dichotomy in the *Computer Inquiry*⁸⁵ line of decisions. Even then the Commission was aware that “data processing” (now enhanced/information services) sometimes yields applications that looked very similar to services offered by carriers over “pure communications.”⁸⁶ It nonetheless chose to subject the enhanced offering to different regulatory treatment than applied to the substitutable telecommunications service. For example, data-based message switching of the time competed with Western Union's then still-regulated services. The FCC well understood what it was doing:

These two things look very similar to each other. However, one was regulated; the other was not. One was expensive; the other one was cheap, and avoided regulatory fees. One is a substitute service for the other.⁸⁷

It is *Déjà Vu* all over again. Will the Commission decide to let new technology proceed unfettered, or will it instead let ILECs like Embarq hobble new technology by imposing unnecessary costs? The Commission got it right when it adopted the *Computer Inquiry* and cannot and should not decide it was all a mistake. After all, it was *Computer Inquiry*⁸⁸ and the ESP Exemption that allowed the Internet to grow and prosper. Embarq now wants to impose switched access costs on still-nascent IP-based technology merely because some IP-enabled

⁸⁵ *Regulatory and Policy Problems Presented by the Interdependence of Computer and Comm. Services*, Notice of Inquiry, 7 F.C.C.2d 11, ¶. 16, 8 Rad. Reg.2d (P & F) 1567 (1966) [*“Computer I Notice of Inquiry”*].

⁸⁶ Delbert D. Smith, *The Interdependence of Computer and Communications Services and Facilities: A Question of Federal Regulation*, 117 U. PA. L. REV. 829, note 4, 831, 836 (1969).

⁸⁷ Robert Cannon, *THE LEGACY OF THE FEDERAL COMMUNICATIONS COMMISSION'S COMPUTER INQUIRIES*, 55 Fed. Comm. LJ 167, 170-171 (2003).

⁸⁸ Jason Oxman, *THE FCC AND THE UNREGULATION OF THE INTERNET* (Office of Plans and Policy, Federal Communications Commission, Working Paper No. 31, 1999) available at http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp31.pdf.

applications are substitutable with legacy services. What was right in 1966 is right today. The reasons for the ESP Exemption that existed in 1983 and 1997 still exist today. Contrary to what Embarq says on page 7, the ESP Exemption is not “a narrow exception to the access rule”; to the contrary it is broad and applies to everything that is not both (1) telephone toll and (2) offered by a telecommunications carrier. Everything that is not “telecommunications service” is enhanced/information service and exempt from access charges. The revisionist and selective history and analysis of enhanced/information services and the ESP Exemption that Embarq provides does not withstand any reasonable scrutiny.

Enhanced services were defined long before there was a public Internet. ESPs do far more than just hook up “modems” and receive calls. They provide a wide set of services and many of them involve calls to the PSTN.⁸⁹ The FCC observed in the first decision that created what is now known as the “ESP Exemption” that ESP use of the PSTN resembles that of the “leaky PBXs” that existed then and continue to exist today, albeit using much different technology. Leaky PBXs originate calls that terminate on the PSTN.⁹⁰ The FCC expressly recognized the bidirectional nature of ESP traffic, when it observed that ESPs “may use incumbent LEC facilities to originate and terminate interstate calls.”

The following passage from one of the *Access Charge Reform* orders completely belies Embarq’s attempt to limit the ESP Exemption:

⁸⁹ See, Notice of Proposed Rulemaking, Third Report and Order, and Notice of Inquiry, *In the Matter of Access Charge Reform; Price Cap Performance Review for Local Exchange Carriers; Transport Rate Structure and Pricing Usage of the Public Switched Network by Information Service and Internet Access Providers*, CC Docket Nos. 96-262, 96-263, 94-1, 91-213, FCC 96-488, 11 FCC Rcd 21354, 21478, ¶ 284, n. 378 (rel. Dec. 24, 1996); Order, *Amendments of Part 69 of the Commission’s Rules Relating to Enhanced Service Providers*, CC Docket No. 87-215, FCC 88-151, 3 FCC Rcd 2631, 2632-2633. ¶13 (rel. April 27 1988); Memorandum Opinion and Order, *MTS and WATS Market Structure*, Docket No. 78-72, FCC 83-356, ¶¶ 78, 83, 97 FCC 2d 682, 711-22 (rel. Aug. 22, 1983).

⁹⁰ See, Memorandum Opinion and Order, *MTS and WATS Market Structure*, Docket No. 78-72, FCC 83-356, ¶¶ 78, 83, 97 FCC 2d 682, 711-22 (rel. Aug. 22, 1983) [discussing “leaky PBX and ESP resemblance”]; Second Supplemental NOI and PRM, *In the Matter of MTS and WATS Market Structure*, FCC 80-198, CC Docket No. 78-72, ¶ 63, 77 F.C.C.2d 224; 1980 FCC LEXIS 181 (rel. Apr. 1980) [discussing “leaky PBX”].

341. In the 1983 *Access Charge Reconsideration Order*, the Commission decided that, although information service providersⁿ⁴⁹⁸ (ISPs) may use incumbent LEC facilities to originate and terminate interstate calls, ISPs should not be required to pay interstate access charges.ⁿ⁴⁹⁹ In recent years, usage of interstate information services, and in particular the Internet and other interactive computer networks, has increased significantly. ...

n498 The term “enhanced services,” which includes access to the Internet and other interactive computer networks, as well as telemessaging, alarm monitoring, and other services, appears to be quite similar to the term “information services” in the 1996 Act.... For purposes of this order, providers of enhanced services and providers of information services are referred to as ISPs.

n499 *MTS and WATS Market Structure*, Memorandum Opinion and Order, Docket No. 78-72, 97 FCC 2d 682, 711-22 (*Access Charge Reconsideration Order*). See also *Amendments of Part 69 of the Commission’s Rules Relating to Enhanced Service Providers*, CC Docket No. 87-215, Order, 3 FCC Rcd 2631 (1988) (*ESP Exemption Order*).⁹¹

The notion that the ESP Exemption was only for “connections between ESPs and their subscribers”⁹² is also pure mythology. The various ILECs now owned by AT&T – none of whom have ever been strident advocates for a broad interpretation and application of the ESP Exemption – have had various CEI plans for several services that involved calls going out of the affiliated ESP’s platform and to PSTN customers that are not the “ESP’s subscribers” but were instead persons with whom the ESP subscriber wanted to communicate. Similarly, these plans contemplate calls coming in to the platform from nonsubscribers for delivery to subscribers.

The best and most analogous example is found in the CEI plans for “Facsimile Store and Forward Service” that AT&T-affiliated ILECs have had in place since at least 1995.⁹³ Those

⁹¹ First Report and Order, *In the Matter of Access Charge Reform; Price Cap Performance Review for Local Exchange Carriers; Transport Rate Structure and Pricing End User Common Line Charges*, CC Docket No. 96-262; CC Docket No. 94-1; CC Docket No. 91-213; CC Docket No. 95-72, FCC 97-158, ¶ 341 and notes 498 and 499, 12 FCC Rcd 15982 (rel. May 1997) (emphasis added)

⁹² But see, Embarq Petition, p. iii [asserts does not apply to calls to “nonsubscriber third parties”]; p. 3 [ESP exemption covered only the connection between the ESP and its subscribers, not between the ESP and its non-subscribers.]

⁹³ One by “Ameritech” that was filed in 1995 is available at <http://www.att.com/PublicAffairs/PublicPolicy/CEIplans/81849.pdf>. That CEI plan was amended in 1999 to provide more functionality, and likely expanded the number of calls to the platform by “nonsubscribers” and from the

plans involved calls from nonsubscribers wanting to reach subscribers and calls from subscribers wanting to reach nonsubscribers. Each was treated as an enhanced service, and each was treated as fully eligible for the ESP Exemption. Embarq is just plain wrong. ESPs have always both originated and terminated traffic, and their services have always involved calls both to and from nonsubscribers, because they handled traffic between their subscribers and those who wished to communicate with them.

C. Embarq misconstrues the access charge rules when it asserts that “nonlocal” ESP traffic is not “exempt” and is subject to access charges.

Embarq’s contention that the ESP Exemption applies only to “local” traffic and that access charges apply to “nonlocal” ESP traffic is ludicrous. Do they really believe that all concerned have forgotten the ILECs’ strident cry that ESP traffic was not local as a matter of law, and therefore not subject to §251(b)(5). This Commission initially agreed in the *ISP Declaratory Ruling*, but on remand held that the focus on “local” was misplaced. As a result, the Commission ruled that ESP traffic is not subject to §251(b)(5) for a different reason – because it is “information access” and is carved out by §251(g). The DC Circuit, however, rejected that conclusion too. The sole remaining contention that has any validity is that ESP traffic is largely interstate and it is not presently possible to distinguish between communications that are entirely intrastate and those that are interstate.

But none of this has anything to do with whether access charges apply, or whether it is subject to §251(b)(5) when two LECs collaborate on a call that involves an enhanced/information service. ESPs have always been allowed to buy “end user” telephone exchange service even though the communications riding on top of the telephone exchange service go between exchanges, between states, often other countries and – as shown above –

platform to “nonsubscribers.” <http://www.att.com/gen/public-affairs?pid=2987>. Southwestern Bell Telephone’s similar plan from 1995 can be viewed at <http://www.att.com/PublicAffairs/PublicPolicy/CEIplans/82007.pdf>.

sometimes even both originate and terminate on the PSTN. This was so when the “exemption” was recognized and has never changed. If an entity is an ESP (and therefore providing an enhanced/information service) then the ESP is not subject to access charges like a carrier would be. The fact that two LECs collaborate to handle an ESP call does not change this. Since it is “end user” traffic and since as between the two LECs it is “telecommunications” it is subject to §251(b)(5). One of the two LECs cannot charge the other LEC access charges for its part of the handling of the call. Obviously the fact there is joint collaboration does not vitiate the exemption so neither LEC can directly or indirectly charge the ESP access charges. Embarq’s attempt to change history and ignore the plain meaning of the statute and rules must be rejected.

D. Embarq’s request is not “technology-neutral.”

Embarq asserts on page iv and 7 that the Act and rules are “technology neutral.” They are hardly in a position to advance the proposition that all things must be neutral when it comes to the Internet and IP, and they over-generalize and misapply that principle to the issues in this case. If this were some kind of fundamental precept, what is the basis for NECA’s demand that IP-based systems have to look, act and feel like TDM systems, have traditional phone numbers and be shoe-horned into traditional legacy geographic-based rating constructs that were developed because of the technology that existed 50 years ago? That is not technological neutrality.

With regard to VoIP and access charges, the Act and the rules at present very much incorporate and apply technological considerations to determine the parties’ rights, duties and obligations. The definitions of “enhanced service” and “information service” both completely rest on technological considerations. Does the *technology* “employ computer processing applications that act on the format, content, code, protocol or similar aspects of the subscriber’s

transmitted information; provide the subscriber additional, different, or restructured information; or involve subscriber interaction with stored information?”⁹⁴ Does the *technology* “offer[] a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications”?⁹⁵ If it does, then it is not a telecommunications service, and is an enhanced/information service. What Embarq and NECA are really advocating is not “neutrality” at all. They want to forcibly treat all critters the same, regardless of species. Anything that “walks like a duck” so as to be able to use the PSTN must assume every other duck attribute as well, and suitably punished when it does not perform like a duck in all ways.

While “technological neutrality” in terms of intercarrier compensation is a fine aspirational goal – since as we all know “a minute is a minute” – the statute and rules do not at present incorporate that approach.⁹⁶ And, what the ILECs advocate is not in fact “neutral” because it is SS7/TDM/Legacy-centric and handicaps new technology so as to favor the ILECs’ legacy technology laden incumbent status and it preponderates their business model and pricing arrangements over all others. When the ILECs want to truly be “neutral” and nondiscriminatory with regard to traffic, FeatureGroup IP will be eager to negotiate over that issue. We will be ecstatic to discuss arrangements that would establish an intercarrier regime which treats every “telecommunications minute” on a mutual, reciprocal and “neutral” manner, without any distinctions based on technology, service or concepts of geography, so long as it uses the statutorily-mandated “additional cost” standard in §252(d)(2)(A). We will be happy to discuss

⁹⁴ See, 47 C.F.R. §67.702(a) (definition of “Enhanced service”).

⁹⁵ See, 47 USC §153(20) (definition of “Information service”).

⁹⁶ The FCC described the technology-driven distinctions that exist in ¶¶5-7 of the NPRM, *In the Matter of Developing a Unified Intercarrier Compensation Regime*, CC Docket No. 01-92, FCC 01-132, 16 FCC Rcd 9610, 9613-14 (rel. Apr. 2001).

the FCC's \$0.0007 rate, the state rate in each jurisdiction or complete waiver of cost recovery under 252(d)(2)(B)(i). The ILECs, of course, will have to stop blocking calls to the 500 numbers FeatureGroup IP obtained to hand out to ESPs so that the PSTN could call VoIP users that do not have a regular telephone number, and they will have to include that traffic in this regime as well, because otherwise the arrangement would be neither mutual or reciprocal.

E. Embarq's request is unclear as to the scope of its requested relief. Does it cover all "IP" traffic that terminates on its network, or the subset of all IP traffic that has a "voice" component, the subset of all IP traffic that has a "phone" or the smaller subset of IP traffic associated with "Interconnected VoIP service" as defined in the Commission's rules?

Embarq – like NECA – is truly unclear about the scope of the traffic for which it seeks relief. Does it want to impose access charges on all "non-local" (however that is defined) IP-based traffic that touches the PSTN regardless of whether it has a "voice" component? Or does the Petition extend "only" to "IP-to-PSTN voice calls?"⁹⁷ Embarq also refers to "IP-originated phone-to-phone" and even "phone to phone" (omitting reference to "IP-originated")⁹⁸ which could at least theoretically exclude IP-based communications that use software built into a PC rather than a separate handset. But then they also talk about "Interconnected VoIP service"⁹⁹ – presumably that covered by the FCC's definition of that term, which has specific criteria that must each be met, thus excluding many other IP-based voice-enabled applications, services and devices. If Embarq thinks these are all the same thing and that all kinds of IP-based voice-capable application, service and device are "purely substitutes for more traditional LEC

⁹⁷ See, e.g. Embarq Petition pp. iii, 1, 5, 6, 8, 9, 13, 16, 17, 18, 20, 21, 23, 25, 26, 27, 29. Of course, as shown above, everything on the PSTN is a "voice" call regardless of whether it is really a FAX, TTY/TTD or two modems exchanging files. So clearly Embarq is – whether they admit it or not – wanting to impose access on everything IP.

⁹⁸ Embarq Petition pp. vi, 4.

⁹⁹ Embarq Petition pp. 1, 4, 5, 9, 10, 11, 13, 14, 21, 22, 24, 26, 28, 30.

services”¹⁰⁰ they are sadly mistaken. The Commission has held that “Interconnected VoIP service” is substitutable with some legacy services, but as we have tried to show throughout this filing there is a huge and growing amount of IP-based traffic that is not associated with “interconnected VoIP service.” Embarq’s Petition is so unclear and so full of internal inconsistency that it must be denied.

To the extent Embarq did intend to have “Limited Forbearance” it needs to do a better job explaining what is covered and what is excluded. Then it will need to advise the Commission and the affected parties how the traffic that is included in the request (and therefore subject to access) can be identified and segregated from any IP-based traffic that is excluded from the request (and therefore still treated as “end user” non-access traffic). Those on the TDM side of the gateway will not have any way to determine the type of equipment used by the party initiating the session, or whether there is a “voice” component. On the PSTN side of the gateway everything looks like a duck. To the extent any distinctions can be perceived at all anywhere, it would be on the IP side of the gateway. But even VoIP “providers” often cannot tell what kind of device is used or if it is all software resident in a PC.

F. Embarq’s requested relief is neither mutual nor reciprocal, because it – like NECA’s request – addresses only termination and ignores origination.

Embarq’s Petition is totally one-sided, and is designed to let Embarq always recover access charges but not pay either access or reciprocal compensation when it serves as the originating carrier. The result is neither “reciprocal” nor “mutual” and it flatly violates the Act. Embarq’s Petition – like NECA’s Request – pertains to traffic that Embarq terminates, and

¹⁰⁰ See, e.g., Embarq Petition p. 9. If Embarq is correct that “Interconnected VoIP services” like Vonage are “purely substitutes for more traditional LEC services” then Vonage is not subject to access as such, because “LEC services” are statutorily confined to “telephone exchange” and “exchange access” – neither of which incur access charges. IXC’s provide “telephone toll” – which is not an “LEC service” although LECs often also act as IXC’s – and “telephone toll” is what incurs “exchange access charges” under the Act and the rules. Again, Embarq’s loose terminology prevents reasonable assessment of what it really wants.

would presumably leave in place the current situation (whatever it is) with regard to traffic originating on Embarq's network that is addressed to users on other networks. If Embarq is indeed seeking to entirely eliminate the ESP Exemption, but believes that the LEC rather than the ESP is the one that is responsible for paying access to connecting carriers, then Embarq must be required to pay access to a CLEC that provides PSTN connectivity to an ESP when a call addressed to an ESP or an ESP's user originates on Embarq's network.

G. Embarq's request fails each of the forbearance tests.

1. Although Embarq does not list §251(c)(1) or (2), it is functionally seeking an order that would allow it to not comply with those sections. If Embarq secures forbearance from §251(b)(5) with regard to whatever traffic is involved in the scope of its request, Embarq will no longer have "(t)he duty to negotiate in good faith in accordance with section 252 the particular terms and conditions of agreements to fulfill the duties described in" §251(b)(5), at least with regard to the traffic that is covered by §251(b)(5) but "excluded" as a result of forbearance. In addition, Embarq has the duty under §251(c)(1) to negotiate in good faith to implement §252(d) – which imposes the cost-based criterion for "transport and termination" of traffic under §251(b)(5). Embarq did not seek forbearance from §251(c)(1) or §252(d)(2). Finally, Embarq did not seek forbearance from §251(c)(2)(A) or (D), which require Embarq to provide interconnection "for the transmission and routing of telephone exchange service and exchange access" "on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, in accordance with the terms and conditions of the agreement and the requirements of this section and section 252" – which, again, include the cost-based criterion in §252(d)(2). Since Embarq did not seek forbearance from §251(c)(1) and (2), the Commission cannot not grant forbearance from enforcement of those provisions.

2. Embarq is seeking to do indirectly through implicit “universal service” subsidies what it cannot directly do under §254. One of Embarq’s main claims is that it needs the subsidies built in to access charges to support not only its narrowband network but also to deploy broadband.¹⁰¹ Embarq, of course, forgets that ESP traffic is subject to §252(d)(2) and that section guarantees that Embarq will recover its costs when it transport and terminates the traffic in issue; hence ESP traffic does carry its “fair share” of costs. Embarq plainly wants to recover more than the “additional cost” of transporting and terminating ESP traffic by receiving access, and it clearly and frankly asserts that this subsidy is necessary to achieve “universal service” goals. The demand for access and Embarq’s frank admission that it wants ESP traffic to subsidize deployment of broadband in the name of “universal service” means its request must be denied.

Embarq and the other ILECs have insisted that broadband is “competitive.” If that is true, then clearly Embarq cannot use any §254 universal service subsidies for the purpose of deploying broadband because of §254(k). What Embarq is seeking here would allow it to use the subsidies that remain in access charges to fund “competitive” broadband. While that may or may not be desirable from a public policy perspective, the Commission cannot let Embarq do indirectly through access charge “universal service” subsidies what it plainly could not do through “explicit” §254 subsidy payments.

In similar vein, Embarq has not presented any information in this case to support the proposition that its switched access charge offerings are “competitive.” FeatureGroup IP would certainly contend they are not, especially in non-metropolitan areas. Yet Embarq wants to use (noncompetitive) switched access charge revenues to fund deployment of (competitive) broadband services. Section 254(k), however, directly prohibits this result: “[a]

¹⁰¹ Embarq Petition p. 23 and note 58 and p. 28.

telecommunications carrier may not use services that are not competitive to subsidize services that are subject to competition.” Embarq has not sought forbearance from §254(k) in this case, and therefore its Petition must be denied.

3. Embarq’s Petition would eliminate competition for telecommunications service by functionally requiring the ESPs that presently use CLEC service to directly subscribe to Embarq’s switched access service. The Petition is a naked attempt to steal away the CLEC’s primary base of customers. Of course, Embarq says the existing relationship between CLECs and ESPs is illicit and inappropriate, but that is what the ILECs always say about everything and anything a CLEC does that somehow manages to turn a profit. According to the ILECs, if a CLEC can make money on it, then it must be arbitrage and has to be stopped. We have been engaging in ILEC “whack-a-mole” for 11 years now. Each time CLECs develop a business model that turns a profit, the ILECs go on the warpath and seek a change in the rules. So it is here.

Embarq’s Petition would not advance competition in the provision of telecommunications service; to the contrary it would eliminate many of the CLECs that are somehow managing to hang on in Embarq’s territory. Therefore, the Petition cannot be granted because it fails the §160(b) test.

4. Continued enforcement of 69.5(a) and §251(b) is necessary to ensure that the charges, practices, classifications, or regulations by, for, or in connection with that telecommunications carrier or telecommunications service are just and reasonable and are not unjustly or unreasonably discriminatory. The FCC has consistently held that ESPs should not be required to pay access charges, because doing so would be unjust, unreasonable and discriminatory. While Embarq believes that the situation has changed, FeatureGroup IP

emphatically disagrees. The Internet is not a telephone company. Microsoft is not a telephone company. A basic Internet user is not a telephone company or an IXC. Embarq's focus on "voice" service (however that might be defined) and its apparent attempt to impose access charges on traffic to or from the Internet that may have a "voice" component is completely unworkable and would lead to massive confusion. It would disturb many existing and long-standing relationships, require an incredible set of network reconfigurations by ILECs, CLECs, ESPs and others and it would impose an immense cost to society. It would increase discrimination, not end it. Embarq's Petition fails under §160(a)(1).

5. Continued enforcement of §69.5(a) and §251(b) is necessary for the protection of consumers. While Embarq claims its request is submitted on behalf of its users, as shown above that is not true. The communications in issue all go to and/or originate from Embarq's own users. Embarq's consumer customers will suffer from the dislocation, increased cost, confusion, reduced choice and the limits on their ability to communicate with the Internet. Embarq, of course will mightily benefit. Its own users – the ones that are making or receiving the calls Embarq wants to subject to switched access – will be plainly hurt. Embarq's Petition fails under §160(a)(2).

6. The public interest cannot possibly be served if competition is eliminated, Embarq harms its own users, wipes out the nascent IP-based voice-enabled market, requires every user to directly or indirectly pay switched access when they make a call on the Internet and requires every CLEC and ESP that has existing trunks handling this traffic to be rehomed to an access tandem. Embarq's request wholly fails under §160(a)(3).

**III. THE NECA AND EMBARQ PETITIONS WOULD REQUIRE MASSIVE,
COSTLY AND TOTALLY UNNECESSARY NETWORK AND ROUTING
RECONFIGURATIONS BY ILECs, CLECs AND ESPs**

The ILECs make it appear that all the Commission needs to do is issue two simple orders that certain information be signaled and certain rates (access charges rather than end-user charges, or access charges instead of reciprocal compensation) should be paid. They are very, very wrong.

As noted earlier – and just as Embarq and NECA bemoan – virtually every non ILEC-affiliated ESP today obtains its PSTN connectivity from a CLEC in the form of ISDN-PRI trunks and interfaces. The ESPs do not buy switched access; they do not use Feature Group A, B or D. They do not have CIC codes, ACNAs or any of the other designations or identifiers for IXC or LECs. ESP switching platforms (softswitches) are not identified in the LERG as routing points or have switch CLLIs. ESPs do not usually directly connect to the SS7 cloud using A, B or F-Links. When ESP-related traffic originates from or is destined to terminate to a user on an ILEC's network, it rides over what Embarq and NECA call "local" interconnection trunks that go for the most part to the "local" tandem operated by the dominant ILEC in the area. The tandem connects to the ILEC CO, and then the ILEC's end user. The ILECs correctly observe that these "local" interconnection trunks are not "access" trunks. What they fail to mention is that since ESP calls are not presently considered to be "access" there is no call set-up information identifying the call as "ESP." The SS7 and AMA information does not include any notation that it is "ESP." The collaborating carriers do not exchange call detail (and particularly Access Usage Records) that would allow mapping of specific calls and the associated rating to individual ESPs.

Let us contemplate what would need to happen if the Commission were to hold that ESPs (or some subset of them) are now *quasi*-carriers and instead of obtaining “end user” service must subscribe to switched access. This is a short list, and is likely far too underinclusive:

A. Each ESP would have to design a new network and routing topology for its traffic. It would have to identify what access tandem to go to, and which end offices justify direct end office trunking so as to minimize access priced tandem switching and tandem switched transport. It would have to obtain each appropriate code (CIC? OCN? ACNA? CLLI?). It would have to submit Access Service Orders to every LEC in every LATA where it had traffic and pay nonrecurring charges so that it could then enjoy the monthly recurring and usage charges.

In addition, switched access is a “bearer” service. Signaling is a separate matter. Each ESP would have to find a SS7 vendor and establish the appropriate SS7 Links, and do all the programming and fill out all the forms necessary to accomplish this operational change. To accomplish this, the ESP would have to change out its internal programming and change the interfaces, line cards and switching intelligence to accomplish the move from ISDN PRI D channel signaling to SS7 signaling.

There will be an immense internal and external cost imposed on each ESP to complete this process. There are bound to be problems along the way, when the roll-over is happening or soon thereafter, with the result that some or maybe even all communications involving the PSTN would be disrupted or would not complete. The ILECs do not at all try to identify the cost and disruption to individual ESPs or society at large that would flow from the massive network reconfiguration, re-homing and re-routing.

B. Each ESP would more than likely cancel its current contracts with every CLEC because it would make much more sense to directly go to the ILEC tandem if any significant

volume of traffic is involved. Most CLEC/ESP contracts, however, are volume/term arrangements, and they typically have significant termination liability penalties. Would the Commission order serve to excuse the ESP from termination liability? We do not know. Regardless, there will either be a significant cost to the ESPs or a significant loss (in revenues and/or in non-recovered termination penalties) to the CLECs.

C. Each LEC would have to make all the appropriate changes in their OSS systems to cancel existing billing arrangements and establish new “access” arrangements.

D. Since most of this traffic presently goes over so-called “local” interconnection trunks rather than access or access toll connecting trunks, many “local” trunks would be far oversized after the move. The ILECs and CLECs would have to undergo a complete re-engineering and re-sizing of their interconnection arrangements, with the requisite changes to routing and then billing and for the facilities and/or trunks. Embarq notes that there is presently a relationship between ESP traffic that ILECs terminate and ISP-bound traffic that goes through CLECs, because at least some current interconnection arrangements incorporate the 3:1 ratio established in the *ISP Remand Order*. We can certainly expect some disputes to arise over the reconfiguration, the resulting facility and trunk cost sharing change and – obviously – the impact on the 3:1 traffic ratio calculation. At least some of these disputes will inevitably find their way to state commissions to resolve, which means that litigation costs will be incurred and the states will experience the cost of arbitrating these disputes.

E. Every ESP that has traffic that would be impacted by these orders would have to determine how to recover the costs associated with the move and the new pricing regime. So, they will change their business model accordingly. It is likely that “free” calling will be

eliminated, and even unlimited nationwide calling plans will go by the wayside. Consumers and ESPs who established relationships based on the previous regime will have to adjust accordingly.

F. These dislocations and costs will not just disappear. The “buck stops” at the consumers’ wallets. Businesses that use IP-enabled services will see a price increase they will likely pass on. Since the folks using IP-enabled services are for the most part ILEC customers to the extent they use narrowband or broadband access, all of this will come down on the head of the ILECs’ own end users.

G. When consumers finally figure out who it was that ordained that this should all happen this way they will visit their wrath on the FCC. We suggest that the Commission increase the capacity of its e-mail system, get more phone lines and hire more mail clerks. “You’re gonna need a bigger boat.”¹⁰²

IV. THE COMMISSION SHOULD ADOPT MODERN, FORWARD-LOOKING INTERCONNECTION PRINCIPLES THAT FACILITATE EFFICIENT AND COST- BASED INTEROPERATION BETWEEN THE LEGACY PSTN AND THE INTERNET.

A. Introduction.

“What we have here is a failure to communicate. Some men you just can’t reach...”¹⁰³

“Communication”: c.1384, from O.Fr. *communicacion*, from L. *communicationem* (nom. *communicatio*), from *communicare* “to impart, share,” lit. “to make common,” from *communis* (see common).¹⁰⁴

‘Information,’ we observed, is derived from the verb inform, which is related to the verb “form.” To inform is not to “deliver information,” but rather to form the other party. If you tell me something I didn’t know before, I am changed by that. If I believe you, and value what you say, I have granted you authority. Meaning, I have given you the right to author what I know. Therefore, we are all authors of each other. This is a profoundly human condition in any case, but it is an especially important aspect of the open source value system. By forming each

¹⁰² Roy Scheider, as Chief Brody in “Jaws” © Universal Pictures(1975)

¹⁰³ Strother Martin as Captain, Road Prison 36 in “Cool Hand Luke” © Warner Brothers/Seven Arts (1967).

¹⁰⁴ Online Etymology Dictionary, available at <http://www.etymonline.com/index.php?term=communication>.

other, as we also form useful software, we are making the world. Not merely changing it.¹⁰⁵

inter-

pref.

Between; among: international.

In the midst of; within: intertropical.

Mutual; mutually: interrelate.

Reciprocal; reciprocally: intermingle.¹⁰⁶

connect

v. con·nect-ed, con·nect-ing, con·nects

v. tr.

To join or fasten together.

To associate or consider as related: no reason to connect the two events. See

Synonyms at join.

To join to or by means of a communications circuit: Please connect me to the number in San Diego. Her computer is connected to the Internet.

To plug in (an electrical cord or device) to an outlet.¹⁰⁷

We sometimes forget the real meaning and derivation of the words we use. Those in the “communications” industry are here to facilitate people’s ability to *communicate*.¹⁰⁸ The roots of that word are “co-” (“together,” “shared,” “common”) and the Latin word “-mutus” (as in “done in exchange,” “borrowed,” reciprocal,” “mutual” (Latin), the Sanskrit “-mitra,” (“friend,” “friendship”)¹⁰⁹ and the similar Indo-European “mei-.”¹¹⁰ “Communicate” connotes “mutuality of

¹⁰⁵ Doc Searls’ IT Garage, “Rolling into 2006” (December 22, 2005) available at <http://www.itgarage.com/node/725>.

¹⁰⁶ “inter-.” Dictionary.com. The American Heritage® Dictionary of the English Language, Fourth Edition. Houghton Mifflin Company, 2004. <http://dictionary.reference.com/browse/inter-> (accessed: February 06, 2008).

¹⁰⁷ “connect.” Dictionary.com. The American Heritage® Dictionary of the English Language, Fourth Edition. Houghton Mifflin Company, 2004. <http://dictionary.reference.com/browse/connect> (accessed: February 06, 2008).

¹⁰⁸ Attribution is due to Sara C. Wedeman, PhD of the Behavioral Economics Consulting Group (becg-llc.com) for her insight and presentation of the etymology behind and often forgotten meaning of the term “communicate.” This paragraph is primarily based on her work.

¹⁰⁹ “mitra,” The American Heritage® Dictionary of the English Language, Fourth Edition, Houghton Mifflin, 2000, <http://www.bartleby.com/61/14/M0351450.html> (accessed February 7, 2008).

¹¹⁰ “mei” The American Heritage® Dictionary of the English Language, Fourth Edition, Houghton Mifflin, 2000, <http://www.bartleby.com/61/roots/IE309.html> (accessed February 7, 2008).

exchange, reciprocity, with a “safety net” of friendship (or at least good will) and a certain level of trust.¹¹¹

Individuals that are *communicating* exchange *information*. This is not a passive activity, and the communicants do not just “deliver” or “receive” that information; the knowledge that is gained on each side actually *informs* and *transforms* both parties. Each side benefits and derives value.

When the communicants are not on the same “network” the conversation can only occur if their respective networks directly or indirectly *interconnect* in a way that will support the information exchange. Like “co-” the prefix “inter-” implies *mutuality* and *reciprocity*. And the base “connect” means “to *join*” or “to *associate*” or – as the FCC’s rules directly state – to “*link*.”¹¹² Interconnection and interoperation is a necessary condition in a world where the “network” is not completely owned by one party, who has total control over the services and applications that will be run on top of the physical network, and the devices that attach to it.

When Congress voted for competition, it necessarily also intended that all networks cooperate, interconnect and interoperate in as seamless a manner as possible. But that cannot mean that one network – here the PSTN – can or should be allowed to dictate the terms or

¹¹¹ See also “communicate” *The American Heritage® Dictionary of the English Language*, Fourth Edition, Houghton Mifflin, 2000 <http://www.bartleby.com/61/78/C0517800.html> (accessed February 7, 2008). Similar connotation is gleaned by considering the meaning and roots of the term “dialog” as expressed by philosopher Martin Buber in *I and Thou* (“*Ich und Du*”, 1923), translated by Ronald Gregor Smith (New York, Charles Scribner’s Sons, 1958). The roots of “dialog” are “*dia-*” which means “including or between two parties”, and “*-logue*,” from the Greek “*logos*”, which means “word” or “speak”). “Dialogue” *The American Heritage® Dictionary of the English Language*, Fourth Edition, Houghton Mifflin, 2000 <http://www.bartleby.com/61/59/D0195900.html> (accessed February 7, 2008); “dialog,” Dictionary.com. *The American Heritage® Dictionary of the English Language*, Fourth Edition. Houghton Mifflin Company, 2004. <http://dictionary.reference.com/browse/dialog> (accessed: February 07, 2008); “dia-,” Dictionary.com, *The American Heritage® Dictionary of the English Language*, Fourth Edition. Houghton Mifflin Company, 2004. <http://dictionary.reference.com/browse/dia-> (accessed: February 07, 2008); “-logue,” Dictionary.com, *The American Heritage® Dictionary of the English Language*, Fourth Edition. Houghton Mifflin Company, 2004. <http://dictionary.reference.com/browse/-logue> (accessed: February 07, 2008).

¹¹² See 47 C.F.R. § 51.5 (definition of “interconnection”).

technical specifics. Indeed it would be entirely ridiculous for that to occur, because the PSTN is the older and less capable, and it cannot really “see” what happens at the higher layers of the stack where all the “Internet” functionalities are taking place. To the PSTN, every thing is a basic voice call and it cannot perceive or recognize the magic that runs on top of the “voice network.” The legacy PSTN is absolutely the worst possible candidate for all-powerful dictator of standards and technical aspects of interconnection. Yet, here we are today confronting a request by the telephone companies that multiple Internet standards be overruled and that modern, next-generation networks be mandatorily dumbed-down and hobbled. And that request is accompanied by another demand that the Internet also pay ruinous above-cost fees as well, even after the dumbing down occurs.

In recent years “interconnection” issues have for the most part been expressed in terms of technical requirements (including signaling), relative cost burdens and – despite what the FCC rule says – unabated controversy over the charges, if any, that will be assessed for the “transport and termination” of “telecommunications” that flow over the interconnected networks. The public rarely participates, and the matter has been dominated by a closed, insular and self-interested group that does its best to maintain the walled garden surrounding the FCC’s Portals. The interlocutors for the internecine¹¹³ combatants in these interconnection debates have been far too focused on their own interests and they have forgotten what this is all about. We are supposed to be working together on a *reciprocal, cost-based* and *mutual*¹¹⁴ basis to help form society by advancing and improving and supporting our society’s ability to *communicate*.

¹¹³ This term is used in the “incorrect” but popular sense described in the “Word History” for this term in *The American Heritage® Dictionary of the English Language*. But the correct usage (“Mutually destructive; ruinous or fatal to both sides”; “Characterized by bloodshed or carnage”, *see* “internecine.”) could also be applied as well. Dictionary.com. *The American Heritage® Dictionary of the English Language, Fourth Edition*. Houghton Mifflin Company, 2004. <http://dictionary.reference.com/browse/internecine> (accessed: February 06, 2008).

¹¹⁴ Sections 201, 251, 252 and 332 command that each of these fundamental principles be applied.

The ILECs, however, are far more interested in gaming intercarrier compensation so that they never pay compensation at any level, but instead always receive compensation for all traffic – regardless of direction, classification or use – at the highest possible access charge rate. And they do not care at all that the traffic they are gaming is “to” or “from” their own users. They wave the universal service/carrier of last resort flag as a justification to not only maintain existing hidden subsidies but to now expand them to include traffic that has always been exempt from access and therefore not a subsidy extraction target. What they completely fail to realize is that the result will not be increased revenues from some previously-unseen “man behind the tree” that can be taxed without any effect on their users. Their proposals will directly translate into higher prices and fewer communications alternatives for their own customers. They should, however, be a bit more humble about the economic power they can exert over the long term. The day may come when the Internet charges them for the privilege of causing their users’ phone to ring. It is, after all, a far larger network than any ILEC’s part of the PSTN or even the entire PSTN¹¹⁵ and it has far more utility. For so long as the ILECs are not allowed to impose their dominion over it merely because they control ingress and egress points, this will continue to be the case. The issue really is not about how much the Internet wants to talk to the PSTN, and how much it will “pay” to do so. The issue is the extent to which the ILECs own narrowband users will be allowed to participate in the Internet and have access to its broader reach and functionality.

The Petition ignores readily available technical solutions that would yield better interconnection, better interoperation and better information. There is a better way.

¹¹⁵ Embarq is woefully mistaken when it claims on page v that “[t]he PSTN provided by LECs like Embarq is the network on which the vast majority of the nation’s traffic will long depend.” The Internet may ride in part on LEC-provided non-PSTN physical layer facilities near the edges, but Internet volume surpassed the PSTN a while back, and while PSTN message traffic is flat or declining the Internet continues to grow.

B. Principles of Interconnection.

The Commission needs to pay as much attention to the technical issues as the rate issues, because – notwithstanding the attempt to separate “technical” from “rate” and the “facilities” from “traffic” – they all interrelate. FeatureGroup IP believes it is time to once again set out what we believe Congress had in mind in 1996, and what still makes sense today.

A. There should be symmetry in any interconnection scheme. The goal should be to encourage and promote two-way traffic, or at least, not to encourage business models that favor one-way traffic delivery based on the current complicated and inconsistent inter-provider compensation schemes.

B. Any interconnection scheme should be cost-based to discourage the ability to arbitrage new technology or to increase the cost of market entry by new technology providers or users. The scheme should encourage the least-cost method of interconnection, should remove incentives for any entity to promote non-cost based methods of interconnection, and all parties should be encouraged to search for the best, most efficient, most economically and most technologically advantageous interface. Any method of interconnection should promote the smallest transaction cost. In a world where traffic flows equally to and from networks and where traffic-sensitive costs are approaching zero, providers do not really need to count minutes any more.

C. Interconnection principles should not favor one technology over another. That is to say, there should be no favoritism based upon application (*e.g.*, voice, chat, text, IM, email, video). In a digital world, all applications are or should be equal. To discriminate among applications would adversely skew the policy principles encouraging convergence.

D. Interconnection principles should not favor one affiliation or one type of provider over another in order to avoid and predatory cross-subsidy.

E. Interconnection should support modern public policy goals including

- i. promotion of network effects;
- ii. creation of group forming networks;
- iii. encouragement of user choice of technology, providers and applications;
- iv. user control over their own communications experience to the fullest extent possible; and
- v. promotion of open network concepts that enable and welcome technological and social improvements regardless of source.

F. Interconnection should support historical public policy goals while subsidies move from application to network support.

- i. Internet-based communications, if allowed to evolve and serve users without subjugation to legacy access charge rules, could dramatically ease the burden on the Universal Service Fund (VoIP could be a near free alternative for traditional voice telephony if we allow it);
- ii. current ILEC distribution of voice is economically 10 to 15 times more expensive to provide when compared to IP and Mobile voice;
- iii. IP and Mobile voice have more benefits to those USF is supposed to help;
- iv. allowing alternative providers to fulfill USF goals and receive subsidies allows investment in new technology;
- v. now that costs to provide service are dramatically lower, prohibit over earning by any recipient of USF; and
- vi. prohibit distribution of USF to any entity or affiliated entity that does not also explicitly support Modern Public Policy Goals (*e.g.*, if a telco blocks VoIP or other Internet traffic, that telco cannot receive a subsidy).

Surely we can all at least agree that it is important for the telecom and Internet industries to develop an interconnection regime that creates a mutually virtuous cycle for the carrier, for the application provider, for the consumer and for society-at-large. FeatureGroup IP has yet to see any attempt to present a legal and policy argument that would justify arrangements that do not reflect legitimate costs and are not reciprocal in nature. But that is exactly what the ILECs want.

All Americans, including ILEC customers, should be able to realize what happens when different networks interconnect and interoperate. All users should be able to share the value that accrues from the combination of Reed's and Metcalf's law, but that can only be achieved when we create a ubiquitous, interoperable and seamlessly interconnected "network of networks" and one network does not preponderate over the others by demanding non-reciprocal, arbitrage-creating, technology-debilitating rents to all others merely so they can all intercommunicate. In an Internet-enabled world, consumers of narrowband PSTN service should not be precluded from fully participating in the digital Internet revolution because of what is nothing less than an

economic boycott by the cartel of incumbent telephone companies that are holding their own users hostage.

CONCLUSION

The NECA and Embarq Petitions both ultimately reduce to the proposition that a SIP client on a broadband user's PC becomes a carrier if the user tries to establish a call session to a narrowband user. But there is not any law, regulation or legitimate forward-looking policy objective that can reasonably lead one to conclude that an application on a computer is a carrier just because the media session includes the human voice. The ILECs are suggesting – like America's Carriers Telecommunication Association did in 1996 – that software providers are carriers and it is “not in the public interest to permit long distance service to be given away, depriving those who must maintain the telecommunications infrastructure of the revenue to do so.” The ACTA petition was roundly ridiculed and was properly left to wither away. Have we strayed so far from the policies behind the 1996 amendments that the very same Luddite perspective embodied in the ACTA petition is now to be the official policy of the FCC?

The NECA Petition uses the wrong tool and the wrong information and punishes the wrong participants for alleged transgressions committed by others. The ILECs (with regard to both the request for an Interim Order and Embarq's Forbearance Petition) no longer even try to pretend that they are attempting to enforce the current signaling and compensation rules that apply only to carriers. Instead, they seek new rules that will impose non-cost based switched access charges and onerous regulations on enhanced/information service providers and even individual users, none of whom provide telephone toll service and therefore cannot be subjected to the exchange access charge regime or Title II.

Embarq's Petition also re-writes history and reflects a skewed vision of the world. They want to eliminate the exquisite balance behind §§251, 252 and 254. Under the Act intercarrier compensation for all "telecommunications" is supposed to be truly cost-based and implicit subsidies from competitive services must be eliminated as a result §252(d); USF support under §254 has to be explicit and can not be used for competitive endeavors such as broadband; competition of all types is encouraged, and incumbents are freed from onerous regulation – they can also compete on a level-playing field so long as they do not abuse their entrenched dominance. But Embarq wants the non-cost based access regime to be expanded to previously exempt ESP traffic. Embarq wants to recover access payments from either competitive carriers or ESPs for information service traffic and use the "subsidy" to engage in "competitive" broadband" markets. They want to impose carrier obligations on ESPs and ESP users but deny carrier rights to them, thereby protecting Embarq from the disruptive effects of the capabilities that new technology brings. Embarq is seeking to maintain its dominance of the PSTN and extend it to the Internet.

The combination of these two requests will – individually and collectively – collapse several different parts of the Internet market, and functionally eliminate a host of beneficial Internet-enabled services, applications and devices because they do not (and may not ever) comport with the proposed signaling requirements and the imposition of non cost-based rates will eliminate the free or low-cost offerings and applications that are presently proliferating.

The requirement that a traditional number be signaled and then using that number as the rating engine – with the result that all traffic, including even basic dial-up Internet access, that is not deemed to be "local" pays access – is simply the wrong way to go. The Commission cannot "embark" on this path.

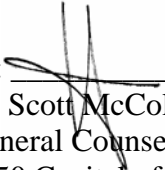
Good policy would solve the technical problem. Good policy would base prices on cost and eliminate implicit subsidies rather than expanding them. Good policy would encourage innovation and deployment of new technology and innovative services. Bad policy would allow the incumbent legacy network owners to capture the value generated by new technology implemented by others and retard competitive entry in those places where there is little or no competition.

Granting the relief requested in the NECA and Embarq Petitions would reflect bad policy and would violate the Act. The NECA Petition cannot be adopted on either an interim or permanent basis. Embarq's Petition cannot be lawfully granted because it fails each of the forbearance tests.

The time has long since passed for the Commission to implement interconnection reform. But the last thing to do would be to introduce an accelerant while all the participants are fiddling, and watching Rome burn. Tell the ILECs to quit acting like a modern day King Canute seeking to hold back new technological waves. Both Petitions must be denied.

Respectfully Submitted,

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